REFRIGERATION SUPPLY JOBBER ACTIVITIES

California Refrigerator Co. Adds Space and Equipment; Air Conditions Offices

SAN FRANCISCO—California Refrigerator Co. has just completed additions to its salesroom, warehouse, and offices at 1077 Mission St. here, reports Clarence F. (Sandy) Pratt, president.

New devices have been installed in the salesroom and shipping department to enable more efficient handling of both over-the-counter and out of town orders, and an outside receiving platform, with two levels, has been built adjacent to the warehouse, Mr. Pratt said. Added parking space for customers also has been provided.

Improvements in the offices, made by Engineers Jesse Rauch and Lem Branson, include a telephone system with a small switchboard at each desk, permitting the handling of twice as many calls as formerly. All offices have been air conditioned.

Bengston Helps to Organize Mississippi Valley R.S.E.S. Chapter

DAVENPORT, Iowa — Mississippi Valley Chapter of National Refrigeration Service Engineers' Society has been organized through the efforts of E. L. Bengston, of Republic Electric Co., local refrigeration supply jobber.

A number of factory engineers from the different refrigeration supply manufacturers have given educational talks at the chapter's meetings which are held in Republic Electric's convention hall.

J. S. Kimmel, general manager of the company, left recently on a one-month tour of South America.

Refrigerated Christmas Tree Displayed by Service Firm

PITTSBURGH—Representatives of Williams & Co., Pittsburgh refrigeration supply jobber, report that a "refrigerated" Christmas tree was the focal point of the holiday display of Wagner Refrigeration Service Co., at Butler, Pa.

The tree was constructed entirely of ¼-inch copper refrigeration tubing. Upon completion it was hooked to a refrigeration compressor, and the system placed in operation. The tree, decorated with the usual tinsel and ornaments, maintained a heavy frost all during the holiday season.

Patterson Moves to Atlanta Refrigeration Center

ATLANTA—M. D. Patterson Co., local distributor of refrigeration replacement parts and accessories, has moved to larger quarters at 311 Peachtree St., N.E.

Principal purpose of the move, according to R. M. Graves of the Patterson Co., was to furnish the local trade with a more convenient and readily accessible source of supply. The portion of the city surrounding the new location, Mr. Graves says, is occupied largely by firms in the refrigeration business.

Los Angeles Parts Exchange Experiences Business Rise

LOS ANGELES — Refrigeration Parts Exchange has experienced a steady increase in business during the fall of 1936 and the first month of 1937, reports Manager F. W. Gillett.

The unusually cold California winter has not caused a slowing up of activity, Mr. Gillett says, and the company was only indirectly affected by the maritime strike. More money is in circulation than in many years.

English Trade Journal Reviews Refrigeration Engineer's Manual

The following book review appeared in a recent of issue of *Cold Storage and Produce Review,* published in London, England:

At Last! An Operator's Manual*

While much leeway has been made up in the past few years in regard to technical literature on refrigeration, practical refrigerationists have still been conscious of the almost entire lack of books on engine-room and store operation.

To all such technicians the REFRIGERATION ENGINEERS' MANUAL, which is "a guide for the licensed operator of industrial refrigeration systems," comes as a most welcome reference book and literary friend.

The full range of the standard operation of plants in the main fields is dealt with. For example, in the chapter on the manufacture of artificial ice, refrigeration requirements are figured out, freezing tank sizes, times, and brine temperature and circulation. In the chapter on standard refrigeration plant operations, service work on the compression plant is usefully dealt with in a very comprehensive and practical manner. About thirty tables of most useful application for plant operation are supplied; types and behavior of evaporator coils lucidly handled; condenser selection and operation treated; and refrigerants, compressor parts and sizes, and a host of other practical requirements adequately set forth.

We anticipate a very wide and eager demand for this eminently practical and informative manual.

*The Refrigeration Engineer's Manual by S. L. Potts, published by Business News Publishing Co., Detroit, Mich., 224 pages, price $3.00 per copy.

RACI Sponsors 15-Minute Radio Broadcasts

CHICAGO — Refrigeration & Air Conditioning Institute has gone on the air with a 15-minute electrically transcribed radio program featuring the music of Jack Greenlee and his orchestra, and broadcast over seven eastern and mid-western stations.

Principal outlets for the program are WBBM, Chicago, with 14 broadcasts from 6:15 to 6:30 p.m. Saturdays; WOR. Newark. with 12 programs from 10:15 to 10:30 a.m. Sundays; and WTIC, Hartford, Conn., with 12 broadcasts from 11:15 to 11:30 Sunday mornings.

Other stations used, on schedules of one to five broadcasts, were: WJR, Detroit; WTAM, Cleveland; KSTP, St. Paul; and WCCO, Minneapolis.

No Commercial Manual Instalment This Week

Due to a delay in obtaining certain necessary illustrations, there will be no instalment of K. M. Newcum's COMMERCIAL SERVICE MANUAL in this week's issue of the NEWS. The series will be resumed next week.

Three Reasons Why

AERO SELF-ALIGNING SEALS

SELL FASTER

1 - LIST PRICE $1.50

2 - LIBERAL TRADE DISCOUNTS

3 - FULLY GUARANTEED

They Seat and Seal Immediately!

"THE LONGER THE WEAR - THE BETTER THE SEAL"

COVERED BY U.S. PATENT 2,067,540 OTHER PATENTS PENDING

AERO PRODUCTS CORPORATION
36-08-34th St., Long Island City, New York

INFORMATION FOR SERVICE MEN

Artic Methyl Chloride Now Sold in 20-lb. Cylinders

WILMINGTON, Del.—For ease in handling and economy in servicing both household and commercial refrigeration units, the R. & H. Chemicals Dept. of E. I. du Pont de Nemours & Co., Inc. is making its "Artic" methyl chloride available in factory-filled 20-lb. cylinders.

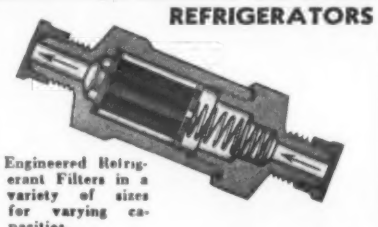
Ermco to Handle Service On Emerson Motors

PHILADELPHIA — Electric Refrigeration Motor Co., Inc., has been appointed authorized service agency for Emerson Electric refrigeration and washing machine motors, announces George C. Tatem, president of Ermco.

From its Philadelphia plant, Ermco will handle Emerson service for Virginia, West Virginia, Washington, D. C., Maryland, Delaware, and parts of New Jersey and Pennsylvania. Service in Illinois and adjacent states will be handled out of the company's Chicago offices.

THE NEW ZENITH REFRIGERANT FILTER

. . . FOR SULPHUR DIOXIDE FREON OR METHYL CHLORIDE REFRIGERATORS



Engineered Refrigerant Filters in a variety of sizes for varying capacities.

Zenith Filters have already proved their value and efficiency in thousands of commercial installations. Now these specially built Filters are available for any size or type refrigerator using Sulphur Dioxide, Freon or Methyl Chloride. Better performance, greater economy, minimum service and better satisfied customers will result from their use in new or old models.

Special features include: Patented Element—Easily and Quickly Cleaned—Easy to Install—Insures positive protection from dirt in the refrigerant liquid — Corrosion-proof, leak-proof and ample capacity. Write for full details.

ZENITH CARBURETOR CO.
Subsidiary
BENDIX AVIATION CORP.
Detroit, Michigan

Davis Publishes Pressure Regulator Selector Chart

CHICAGO — Davis Regulator Co. has published a pressure regulator selector chart designed to permit quick and accurate selection of the proper type of pressure reducing valve to use for any given kind of service on steam, gas, air, oil, or water. Copies of the chart are available from the company.

Holo-Krome Co. Introduces Socket Wrench Set

HARTFORD, Conn. — Holo-Krome Screw Corp. has introduced a new wrench set, containing 11 socket screw wrenches, fitting all hexagonal type set screws up to 1 inch diameter, cap screws up to ⅞-inch diameter, and all sizes of stripper bolts.

The set is contained in a heavy gauge metal box with reinforced corners and snap cover, and will fit in any tool box. List price is $1.25.

Tag Issues New Thermometer & Hydrometer Catalog

BROOKLIN—C. J. Tagliabue Mfg. Co., manufacturer of instruments for indicating, recording, and controlling, has just issued a new Tag laboratory thermometer and hydrometer catalog, known as No. 1100A.

In addition to the regular line of precision and standard grade Tag thermometers and hydrometers, this new catalog includes complete listings of the A.S.T.M. thermometers, and Tag-A. P. I. and certified hydrometers.

Useful data, including comparison scale graduations, corrections for emergent stems, instructions for using hydrometers, and fahrenheit and centrigrade conversion tables, are also contained in the catalog.

Piston Claimed Unbreakable Placed on Market

INDIANAPOLIS—Steel piston rings that are claimed to be unbreakable and immune to distortion have been developed by the engineers of the Steel or Bronze Piston Ring Corp. here, according to George Deeb, president of the company.

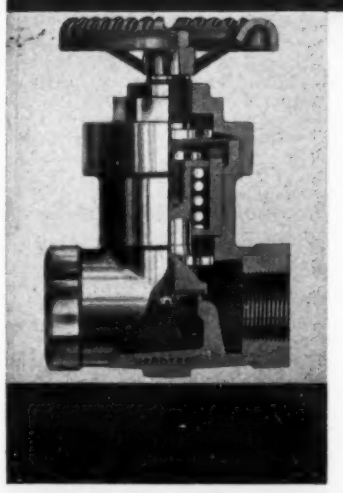
The piston rings made by his firm are ground from high-grade steel, rather than being cast, as are most rings, Mr. Deeb said. He stated also that the metallic dissimilarity between the cylinder walls and his Garsix ring reduces friction.

Mr. Deeb claims that the heat treating to which Garsix rings are subjected neutralizes the metal and relieves it from any stress, hard spots, or brittleness.

Kerotest Bronze Globe Valve design, with extra capacity flow more than equal to full diameter of tubing, have non-rotating, self-aligning seats assuring maximum service. Available in ¼" to 3⅛" O. D. solder connections integral on valve body.

KEROTEST

REFRIGERATION VALVES AND FITTINGS BUILT TO THE HIGHEST SERVICE STANDARD . . . NEVER TO A PRICE!



IT has been truly said that all works of quality must bear a price in proportion to the skill, time, expense and risk attending their manufacture . . . those things called dear, are, when justly estimated, the cheapest.

This applies to Kerotest Valves, Fittings and Accessories in general and to the widely specified Kerotest Bronze Globe Valves in particular. Progressive design and true craftsmanship dominate their entire manufacture. Enduring trouble-free service is meticulously *built into* every Kerotest unit step by step.

Just divide their cost by the years they last and you will discover the plus value built into Kerotest Valves, Fittings and Accessories—why Kerotests are considered an asset by leading manufacturers of refrigerating units throughout the industry.

Warehouse Stocks are carried by Kerotest Jobbers everywhere.

KEROTEST

KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PA.

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APR 9 1937. 1 month

THE NEWSPAPER OF THE INDUSTRY

AIR CONDITIONING AND

WRITTEN TO BE READ ON ARRIVAL

REFRIGERATION NEWS

Established 1926 and Registered U. S. Patent Office as Electric Refrigeration News

Member Audit Bureau of Circulations. Member Associated Business Papers.

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TEN CENTS PER COPY

G-E To Appeal Court's Award To N.K. Ovalle

G-E Disclaims Alleged Promises in Case on Cancelled Contract

BY T. T. QUINN

HARRISBURG, Pa.—In the largest verdict in its history of civil cases, the Dauphin County Court has ordered General Electric Co. to pay $350,078.29 damages to N. K. Ovalle, former G-E distributor, as the result of a cancelled contract.

The Ovalle action was a counter suit against General Electric, which originally sued the distributor for $167,607 for merchandise shipped to Ovalle and allegedly not paid for. The distributor then countered with a suit in which he claimed that loss of the distributorship had cost him more than $300,000 in loss of contracts to supply dealers and being forced to liquidate his merchandise and properties.

The case, filed in January, 1934, went to trial Feb. 1 and the jury brought in its verdict on Feb. 10.

Counsel for General Electric immediately filed a motion to set aside the verdict, and a motion for a new trial, charging that the verdict is excessive, against the weight of the evidence, and against the charge of the court.

Permission was asked to file more specific reasons for granting a new trial within 20 days after the testimony was transcribed. This is now being done.

All papers in the case are now in the possession of the court, pending further disposition of the suit, and were therefore unavailable, but discussions with attorneys Douglass D. Storey, who handled the case for Ovalle, and Paul G. Smith, one of General Electric's legal staff in the suit, brought out salient points of the trial testimony.

In December, 1933, General Electric cancelled the contract of Ovalle, operating as N. K. Ovalle, Inc., under terms of the "30 days' notice, with or without cause" clause in the contract. Shortly afterward, G-E sued for the $167,607 allegedly due for merchandise purchased.

Court action centered on whether or not General Electric had the right to cancel the distributor's contract in the method it did, or whether, by certain statements claimed by the defense to have been made by G-E executives, this right had not been waived.

According to defense testimony, at a distributor convention on Association Island in 1931, T. K. Quinn, then a General Electric vice president, had told distributors to keep their

(*Concluded on Page 2, Column 4*)

Detroit ASRE Holds 'Revival' Meeting

DETROIT—With some 60 members and guests in attendance, the Detroit section of the American Society of Refrigerating Engineers held its "revival" meeting last Friday night in the offices of AIR CONDITIONING AND REFRIGERATION NEWS, electing new officers, and making plans for monthly meetings throughout the balance of the year.

Termed the "revival" meeting because the local section has been dormant since it was host at the national convention in the spring of 1935, the meeting was preceded by a dinner served in the NEWS offices, after which the group heard George F. Taubeneck, editor of the NEWS, speak on his trip around the world.

New officers chosen at the business session were: F. M. Cockrell, publisher of the NEWS, chairman; D. D. Wile, chief engineer of the refrigeration and air-conditioning division of Detroit Lubricator Co., vice chairman; F. O. Jordan, air-conditioning editor

(*Concluded on Page 6, Column 4*)

Proposed Wisconsin Law Would End Utility Sales

MADISON, Wis.—Sales of electric refrigerators and other household appliances by public utility companies would be prohibited under terms of a bill filed recently before the Wisconsin state legislature.

Utilities might display or demonstrate appliances for the purpose of increasing power sales, the bill provides, but consumers would not be permitted to buy the equipment from the company. A fine of from $100 to $250 is provided for violation of the act.

A similar measure, proposed two years ago, was defeated through opposition brought by utilities companies. A change in the political control of the present legislature, however, may result in its passage. The bill has the support of appliance organizations throughout the state.

Universal Cooler Workers 'Sit Down' but Not Long

DETROIT, Feb. 23—A "sitdown" strike by employes at the Universal Cooler Corp. plant here last Friday afternoon (Feb. 19) lasted less than two hours, full production being resumed when the management agreed to a parley with the workers.

The workers were said to be demanding recognition of the union, wage increases, seniority rights, and a 40-hour week.

Two Ortho-Clime Outlets Named

CHICAGO—Appointment of two new Fairbanks-Morse Ortho-Clime air-conditioning distributors has been announced by F. F. Stevenson of the company's air-conditioning division, who recently completed a month's trip through eastern seaboard territory.

New distributors are Ellison & Hawes, Inc., Richmond, Va., and Lee D. Butler Air Conditioning, Inc., Washington, D. C.

Mr. Stevenson's trip covered F-M branch houses and distributors in Boston, Providence, New York City, Philadelphia, Baltimore, Washington, D. C., and Richmond.

Kelvinator Opens Baltimore Branch

BALTIMORE — A direct factory branch of Kelvinator Division, Nash-Kelvinator Corp., has been opened at 1426 N. Charles St. here, to cover the Baltimore and Washington, D. C., territories.

D. A. Dimitry, formerly manager of Kelvinator's Detroit branch, is manager of branch operations. He is assisted by A. O. Price, formerly assistant manager of Kelvinator's Boston branch.

C. H. Herrlich, formerly sales manager of the department store division of Southern Wholesalers, Inc., former Kelvinator distributor here, is general sales manager of the Baltimore manager of Southern Wholesaler's

(*Concluded on Page 6, Column 3*)

Tafel Makes Flood Zone Reconditioning Offer

CINCINNATI—To assist owners of Westinghouse refrigerators in the flooded area in getting their equipment back in operation as quickly as possible, Tafel Refrigerator Co., distributor, is offering to completely recondition units, replacing insulation and other parts where necessary, for a fee of $10 on all-steel cabinets and $15 on wood frame cabinets. The charge does not include refinishing work.

Last Call!

Effective March 1, 1937, the subscription rate of the NEWS will be increased to $4 per year. Until then, new and renewal orders will be accepted at the old rate of $3 per year.

Announcement will be made soon regarding a necessary increase in the price of books of The Refrigeration Library scheduled for publication this year including the 1937 DIRECTORY, the HOUSEHOLD REFRIGERATION SERVICE MANUAL, the COMMERCIAL REFRIGERATION SERVICE MANUAL, and the AIR CONDITIONING MANUAL. Orders may be entered for any of these books at $3 per copy until the new prices take effect.

See combination rates and order blank on page 20 of this issue.

Chicago Installations Of Air Conditioning Up 70% in Jan.

CHICAGO — Air-conditioning jobs installed or contracted for in the Chicago territory during January were 70% ahead of the corresponding month last year, according to figures compiled by Commonwealth Edison Co. Rated connected horsepower of installations showed an increase of 182%.

New installations contracted for totaled 29 last month, compared with 17 in January, 1936. The total capacity of the proposed new installations is 1,654 hp., compared with 585 hp. a year ago.

Greatly expanded activity noted in the air-conditioning field at the present time, chiefly because prospective purchasers want to make certain that their systems will be ready for use when the first warm weather arrives, indicates that February will also be a record month, the utility estimates.

The 29 air-conditioning contracts closed in January were divided as follows:

Residences	7
Restaurants	5
Theaters	4
Doctors' and dentists' offices	2
Funeral parlors	2
Hotels (partial)	2
Shoe stores	2
Bakery shops	1
Five and ten cent stores	1
Fur stores	1
Industrial plants	1
Offices (general)	1

At the end of January there were 1,385 air-conditioning plants in Chicago, with an aggregate capacity of nearly 60,000 hp. Greatest saturation has been reached in the city's theaters, more than half of which are air-conditioned.

Macy's Drop G-E Dept. Introduce Brand Line

NEW YORK CITY—Macy's department store last week introduced a new line of "Supremacy" electric refrigerators to sell on cash terms only, and through an arrangement with Rex Cole, Inc., New York G-E distributor, closed its sales department in which General Electric products were sold on a credit basis.

The new line is being manufactured for Macy's by the General Electric Co., and distributed to the department store by Rex Cole, Inc., who will also handle its warehousing, installation, and servicing.

Macy's store-wide "6% less for cash" policy will apply to the Supremacy line in so far as the models will be priced against G-E 1937 list prices, it was reported.

Eight Supremacy models ranging from 4 to 8 cu. ft. in the deluxe line, and from 5 to 7 cu. ft. in the standard line, were exhibited in Macy's appliance department for the first time last week.

Prices on the boxes ranged as follows: deluxe line—model "MB" 4, $129.95; 5, $166.25; 6, $192.95; 7, $218.95; 8, $240.50; standard line—model "MJB" 5, $146.75; 6, $165.25;

(*Concluded on Page 6, Column 5*)

Birmingham Dealers Up Commissions by New Bonus Plan

BIRMINGHAM, Ala.—Electric refrigeration salesmen in this area will receive 12½% instead of 10% commission on sales this year, with the extra 2½% being kept in reserve until a reserve fund of $100 is accumulated, according to the terms of a new commission scale drawn up by dealer members of the Birmingham Electric Refrigeration Bureau here recently.

In addition to this, the new scale provides that salesmen will receive a bonus of 2% on each sale in which the buyer pays for his appliance within 18 months.

While compensation is scaled upward, more stringent rules regarding sales are imposed in the Bureau's new program. New stipulations state that before the salesman can collect his entire commission on a sale, the customer must have paid a down payment and four monthly instalments. If the refrigerator is turned back before four payments have been made, the salesman loses the entire amount of the commission.

Besides this, the salesman is required to turn in with each contract a letter signed by the customer stating that he understands the terms of the sales contract.

In line with the new plan, dealers are required to supply the Bureau with a list of their salesmen, and to inform it when any changes in personnel are made. No dealer can hire a salesman within 15 days after he has left another dealer.

The code governing sales practices, adopted by the Bureau last year, will apply to 1937 sales, it was agreed. Provisions of the code allow a $5 minimum trade-in allowance on ice boxes, and require an additional $5 cash down payment before a dealer may deliver a refrigerator.

Under the code dealers can give no free demonstrations in the customer's home, and are not allowed to give prizes nor premiums to stimulate sales.

Toledo Appliance Group Organized

TOLEDO—A group of wholesale and retail electrical appliance merchants met at the Chamber of Commerce here recently to form The Retail Electric Appliance Dealers Association of Toledo—an organization whose purpose will be to further the industry and eliminate bad trade practices in the city.

Headed by Charles Blackburn of LaSalle & Koch's, a committee of six was appointed to draw up a charter for the organization.

The group who met to form the association included: Perry White, Electric Range & Equipment Co., Harry Wasserman, United Music Store; Homer Federman, Lange Appliance Corp.; Tom Mason, J. W. Greene Co.; J. F. McNicholson, Lion Store; G. Glowocki, Glowocki Furniture Co.; Dan Nieghswander, Lamson's; Thad J. Moore, Libbey Appliance Co.; Edward Schmidt, H. G. Bogart, Jr., Claire Cooley, V. J. McGranahan, and Mr. Blackburn.

Members of the new association will meet this week to hear the committee's report and complete arrangements for the association.

San Antonio '36 Sales Totaled 1,928 Units

SAN ANTONIO, Tex.—Sales of household electric refrigerators in the territory of the San Antonio Public Service Co. during 1936 totaled 1,928 units, according to incomplete reports made by dealers to the utility. Gas refrigerator sales in the territory amounted to 181 units.

Crosley to Use 'Electrosaver' on '37 Deluxe Line

Highside Float System Used With New Unit; Other Changes Made

CINCINNATI—Improvements and changes in the refrigerating system, consisting of the new hermetically sealed "Electrosaver" unit with the "still air" condenser for the deluxe line, a high-side float expansion system, and the use of Freon-12 as the refrigerant, mark the 1937 line of Crosley household electric refrigerators.

"Electrosaver" or model "T5" Crosley unit consists of a Scotch-yoke type compressor welded into a dome, thereby eliminating the use of gaskets and bolts.

The double-section "still air" condenser is dependent on its large finned area for providing heat dissipation, the area of radiating surface being said to be approximately 3,000 square inches.

The high-side float expansion system used in conjunction with the "Electrosaver" unit, has a high reserve capacity that is said to afford shorter running time and increased freezing speed and capacity.

All deluxe models, as well as the biggest model in the standard line, are equipped with the "Electrosaver." The Crosley "T1" hermetic

(*Concluded on Page 4, Column 3*)

37,759 Units Shipped By Kelvinator in Jan.

DETROIT—Unit shipments of Kelvinator refrigeration products during January totaled 37,759, an increase of 114.4% over the 17,609 units shipped during the same month in 1936, it was reported last week by President George W. Mason of Nash-Kelvinator Corp.

Shipments of Kelvinator domestic refrigerators alone were 85.5% higher than those for the same month last year.

For the first four months of the fiscal year beginning Oct. 1, 1936, the company reports unit shipments of 91,366, an increase of 55.1% over the 58,879 units shipped during the same period a year ago.

Three New Distributors Appointed by Grunow

CHICAGO — General Household Utilities Co. has appointed three new distributors to handle its line in Kansas City, Phoenix, Ariz., and Greensboro, S. C.

New Grunow distributors are: McNeil and Leikens, Kansas City; The Arizona Hardware Co., Phoenix; and the Piedmont Distributors, Inc., Greensboro.

Joe Spain, west coast manager for General Household Utilities Co., and P. W. Peck, southeast division manager, are now conducting sales meetings for Arizona Hardware and Piedmont Distributors, respectively.

Hartenfels Heads G-E Cleveland District

CLEVELAND—C. W. Hartenfels has been appointed manager of the Cleveland district of General Electric Co.'s appliance and merchandise department.

Mr. Hartenfels' connection with G-E began in the Incandescent Lamp Division. For some time he was a sales executive in the Lamp Division's Chicago district. Then he joined Harold Laidley in operating the G-E appliance distributorship in Portland, Ore.

Subsequently, he went to San Francisco as president of Electric Appliances, Inc. When that company consolidated with G-E Supply Corp., Mr. Hartenfels became appliance manager.

UNIVERSITY OF CALIFORNIA
LIBRARY
BRANCH OF

Proved Worth of Mechanical Refrigerators Aids Sales Drives in Nation's Hottest Spot

IMPERIAL VALLEY, Calif.—That housewives in this agricultural section, where 60,000 people live and where temperatures soar to as high as 123° F., consider electric refrigerators almost necessities may be deduced from the fact that they bought 508 refrigerators from retail dealers cooperating with The Southern Sierras Power Co. in a six-weeks campaign, and in 10 weeks purchased 666 units.

This record refrigeration sale represented a portion of the all-round selling job done in the territory during this 10-week drive in which 2,689 appliances were sold at a dollar value of $300,000.

Imperial Valley, with its population of 60,000 is considered the hottest agricultural section in the country where people must work during summer heat. Official figures showed that, in 1936, temperatures of 100° F. or more were recorded on 200 days. On 47 days, the temperature exceeded 110° F.

With this aid to refrigeration sales supplied by excessive heat, The Southern Sierras Power Co. ran two major sales drives last year. First, in a six-weeks drive called the Housewives Campaign, the utility featured low-term selling plans, special window displays, and newspaper advertising to promote new sales.

Installation payments for the major equipment were extended over periods ranging from four to eight years, and interest charges on deferred payments were fixed at 3%. Free installation and free servicing over the entire period of the purchasers' contact were also featured.

Newspaper advertising for this campaign had as its central theme that electric servants, previously barred from homes because of their cost, were now within the buying reach of the majority of families. Refrigerators were offered on terms as low as $2.35 a month.

"Although many housewives were outside the Valley for the summer, the response to the campaign was splendid," said William McCullough, who is in charge of power company salesmen.

"Besides our own sales organization's work in the drive, we cooperated with other retail dealers in the area by purchasing their contracts after a sale had been made. We also furnished the dealers with demonstrators to show purchasers how to use new equipment," he added. "The company installed the equipment free and guaranteed five years service coverage on most sales."

The Power company had 20 of its own men doing outside canvassing during the drive. It installed special display sales rooms in different towns of the Valley, and used three auto trailers, carrying a full line of appliances, to get sales leads.

In addition to the 508 refrigerators sold during the six weeks campaign, Valley dealers sold 318 ranges, 91 water heaters, 321 washing machines, 118 ironers, and more than 500 other items—the total aggregating over $200,000 in value.

Instigated a month later, a four-weeks sales drive termed the Homecoming Campaign was devised to sell appliances to those residents who had left the Valley to avoid the summer heat, and returned early in the fall.

Additional sales in this period raised the total number of unit sales made during the 10-week campaign to 666 refrigerators, 465 ranges, 180 water heaters, 552 other major appliances, and 823 minor appliances.

Imperial Valley Hardware Co., which has six stores in the territory, achieved the highest record for sales made by individual companies. Officials of this 28-year-old firm estimated that the company would sell 16 carloads of refrigerators before the end of the year.

"We attribute our high sales volume to consistent use of newspaper advertising space," Harry Hovey, advertising manager said. "We never run less than a three column 10-inch space, and frequently our advertisements run over 100 inches. We also use some radio space, and billboard advertising. Most of our sales were made by our own store force, although we had two outside salesmen in the field part of the year."

Due to the high temperature in the Valley, two special conditions influence refrigeration sales: first, people drink quantities of ice water and require a great number of ice cubes; second, the residents store even their least perishable foods, such as canned goods, in the refrigerator.

One of the newest farming districts in the country, Imperial Valley was a desert 35 years ago. It is known as the "Winter Garden of America."

Penny Meter demonstrations are helping F-M dealers to clinch sales. If you have not received your Penny Meter display, write, wire, or phone your distributor or Fairbanks, Morse & Co. at Indianapolis.

SHOW your prospects a refrigerator so outstandingly different that your competitors down the street, up the street, and across the street can't show them one like it.

When you demonstrate the new Fairbanks-Morse CONSERVADOR Refrigerator, you **are** doing just that. You are not showing little differences that don't even register in your prospect's memory. You are not showing her just another "me too" refrigerator that looks almost identically like all the others she has seen. You are showing her **big** differences . . . **big** improvements . . . features found in no other refrigerator in all the world.

WHERE ELSE CAN THEY FIND THESE?

First, the **CONSERVADOR;** exclusive; patented; biggest difference of all. Then Self-Sealing Crisper, Sliding Fruit Drawer, and Utility Storage Compartment. **Two**-fifths of this refrigerator's contents can be removed without even opening the main food compartment! Where else can they match **that** for **convenience?**

Show the first modern refrigerator door in the industry; simplified temperature control; automatic overload protector.

Show a refrigerator that not only has reserve power for any heat-wave emergency, but also costs **less,** not more, to operate! And you can prove it. You can show—right on your sales floor—how long it will run on a penny's worth of electricity, at your prospect's rate.

FREE FLOOR PLAN

For a limited time only—A Free Floor Plan on your initial order. This, plus a limited recourse finance plan at no cost to the dealer, means that you can cash in on the early buying market by going into action now.

Your distributor has the details.

IT HAS WHAT YOU NEED TO CLINCH SALES!

Your prospect can see that there IS something different and better in refrigerators and that the Fairbanks-Morse CONSERVADOR has it. You know the sales-clinching power of visible, understandable differences—especially when there is a good reason for every one. They clinch sales where little differences fail. Write the Fairbanks-Morse distributor in your territory now. Get the complete story of the "hottest" refrigerator franchise in the industry today. Fairbanks, Morse & Co., Home Appliance Division, 2060 Northwestern Ave., Indianapolis, Indiana.

Other Fairbanks-Morse Produc's:

WASHING MACHINES, IRONERS, RADIOS, AUTOMATIC COAL BURNERS

FAIRBANKS-MORSE
Conservador Refrigerator

G-E Maps Appeal on Verdict of $350,000 To N. K. Ovalle

(*Concluded from Page 1, Column 1*)

organizations together and not to curtail their promotion, because losses sustained at that time could be recouped from future profits.

Sometime after May 1, 1930, Ovalle had also complained to P. B. Zimmerman, manager of G-E's specialty appliance sales division, that he was losing money in commercial refrigeration, he testified at the trial. Zimmerman told him, he testified, to continue promoting commercial, and that if he lost money it could be recouped from future profits.

In another defense point, it was claimed that when, in 1930, Ovalle had told Quinn that his discount was insufficient, he had been told that General Electric recognized no yardstick measuring the correct amount of discount which distributors should get, but that he should have confidence in the company, and if experience showed discounts to be insufficient, G-E would make them sufficient.

These statements, defense claimed, established a promise on the part of General Electric that if Ovalle didn't destroy his organization, and in refraining from doing so sustained losses he would not otherwise have sustained, his contract would not be cancelled until he could recoup these losses from future profits.

On the strength of these statements, the defense asserted, it had continued to operate at a loss, incurring obligations of more than $50,000 to Harrisburg Trust Co., in addition to its debt to General Electric, from which it was buying merchandise on open account at the time its contract was cancelled.

The company introduced testimony to show it was solvent in 1931, when the alleged statement had been made by Quinn at Association Island.

Brought to the stand by the plaintiff, both Quinn and Zimmerman denied making the statements attributed to them by Ovalle, and G-E distributors Dorsey Hines, Baltimore; L. W. Driscoll, Charlotte, N. C.; and L. H. Miller, then with Driscoll and now with General Electric Supply Corp., Louisville, testified no such statement had been made by Quinn at the Association Island meeting.

G-E also introduced testimony by G. W. Nevin, auditor from its Schenectady offices, and Cedric G. Smith of the financial credit division to show that Ovalle's financial standing was not as strong as he had represented, and that his salary and personal expenses were excessive, in view of the condition of the business.

In returning its verdict, the jury held that General Electric waived its right and estopped itself from cancelling its contract with Ovalle, and that the contract had been cancelled in bad faith.

G-E's original claim against Ovalle, the jury said in commenting on the verdict, had been taken into consideration, and the award to the defendant was in addition to this amount.

In their petition to have the verdict set aside, G-E attorneys claim that the statements, even if made by company agents, are not sufficient in law to establish any waiver or estoppel of cancellation rights; that the distributor-dealer contract lacked mutuality; and that damages action for such cancellation cannot be maintained by defendant; and that if G-E representatives made statements which could be taken to mean that, under certain conditions, the company would make good the distributor's losses and continue his contract until they were recouped from profits, then such statements were not within the apparent scope of their authority, and there is no evidence to find that they were authorized to make them.

Canadian Dealers See New Norge Lines

TORONTO, Ont., Canada — Two hundred dealers of the Toronto district viewed new Norge electric refrigerators, ranges, and other appliances at a sales convention sponsored by the Canadian Radio Corp., distributor.

Dealers were welcomed by B. A. Trestrail, director of sales and advertising; D. G. Mackenzie, vice president and general manager; R. W. Gifford, manager of Norge's export division; G. L. Sammis; J. H. Whiley; and Lee Ainsworth.

Seek Local Pacts on Instalment Sales

WASHINGTON, D. C.—Cooperation of community interests to weed out "pernicious practices" in instalment selling wherever they may exist, was called for by J. Anton Hagios, manager of the credit management group of National Retail Dry Goods Association, before a district conference of the association at the Mayflower hotel here.

He urged self-regulation of business in local communities, particularly from the standpoint of standardizing terms on a sound basis and in the advertising of carrying charges.

Mr. Hagios suggested that instalment terms, regardless of the type of merchandise involved, might be standardized by community action so as to require a minimum down payment of 10% and maximum terms of 24 months, with a graduating scale in which the length of the payment period would increase in ratio to the amount of indebtedness.

A responsibility exists, he said, for the retailer in community cooperation to correct the "archaic attitude" on the part of many consumers that the carrying charge is usurious.

"There can be no question about the justification of the carrying charge, and the fairness of the present rate to the consumer for the additional financial service performed," he said. "But it is high time that communities got together to see that the quotation of the charge is featured properly in newspaper advertising, unless they are willing to see governmental authorities step in and tell them how it shall be done."

Grunow to Concentrate On Cooperative Copy

NEW YORK CITY—Approximately 80% of the advertising budget for Grunow refrigerators this year will be used in cooperative advertising with dealers, Herman Smith, eastern divisional sales manager for General Household Utilities Co., told dealers at the first of a series of "open house" meetings in Hotel Edison, at which 1937 models are being shown.

About 1,500 newspapers, six national magazines, six trade publications, and radio are to be used in the 1937 campaign, Mr. Smith said.

The meetings, which will continue for a period of about two weeks, are also being held at headquarters of Julian Loeb, Grunow distributor, 651 Atlantic Ave., Brooklyn. In charge of the meetings, besides Mr. Smith and Mr. Loeb, are Jack Newmark, assistant to Mr. Smith, and James Vulter.

R. A. Mann Closes 10 Sales In Single Week

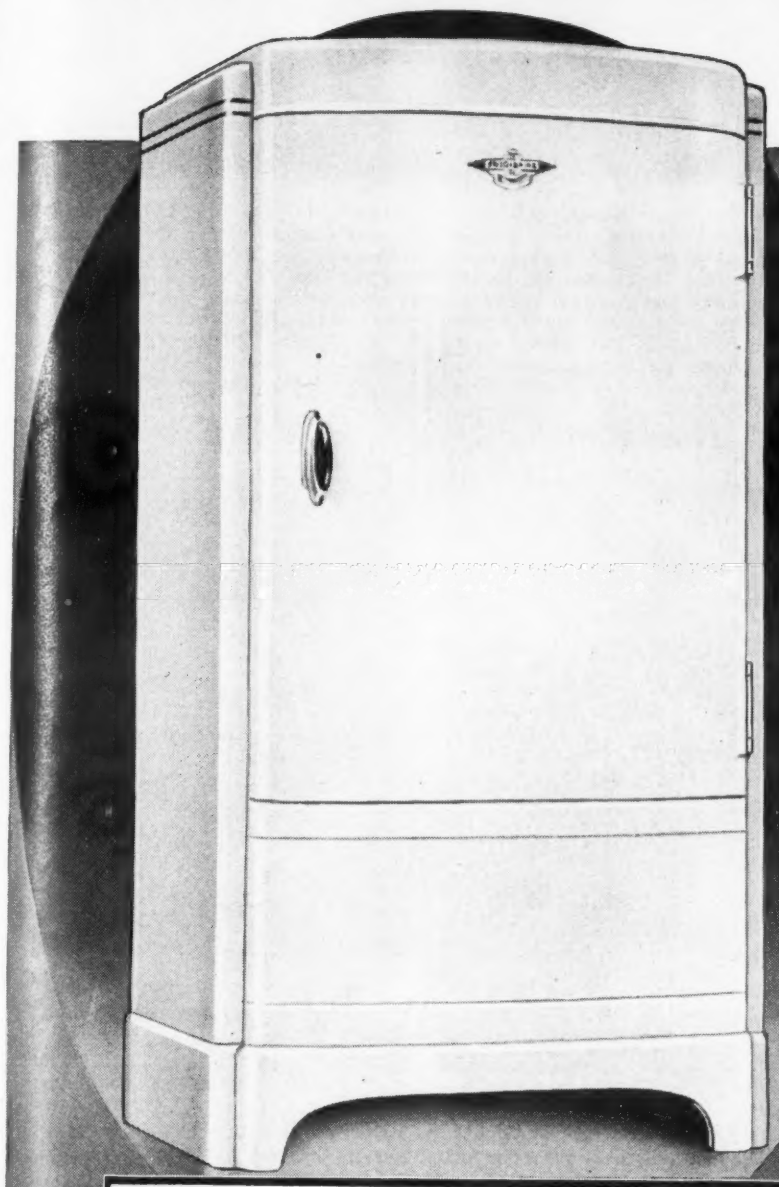
TALLADEGA, Ala.—R. A. Mann, salesman for the Alabama Power Co. in this district, recently sold 10 electric refrigerators in one week, reports Geo. M. Robards, East district sales supervisor for the utility.

The sales, made during the week ending Feb. 6, brought the total amount of business which Mr. Mann has done so far in 1937 to $2,100.

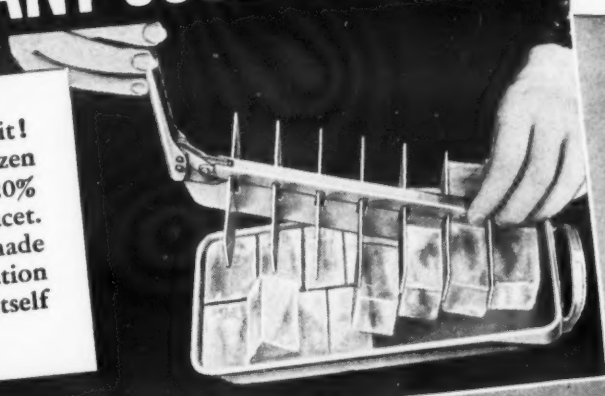
OUT TO SMASH RECORDS AGAIN!

Announcing

THE NEW *"SUPER-DUTY"* FRIGIDAIRE



...*with the* NEW INSTANT CUBE-RELEASE



The 1937 sales sensation! Only Frigidaire has it! Instantly releases ice-cubes from tray, two or a dozen at a time, with simple lift of lever. Yields 20% more ice by ending waste of melting under faucet. Quick, easy action. The greatest advance ever made in Ice-Cube Convenience. A single demonstration puts Frigidaire 'way out in front, in a class by itself for 1937!

...*the* NEW 9-WAY ADJUSTABLE INTERIOR

Housewives have never seen anything like this for work-saving and convenience! Includes a 2-way Frozen Storage Compartment . . . 2-way Cold Storage Tray . . . 3-way Sliding Shelf . . . a 2-way Multi-Storage Section. 9 quick, easy adjustments, with dozens of variations to suit every kind, size, shape of food or container! STORAGE-ABILITY never known in home refrigeration before!

...*and of course, the* METER-MISER

Most talked-about refrigerating mechanism in the industry! Cuts current cost to the bone! And proves it to you with an actual electric meter test! Meter-Miser gives SUPER-DUTY at amazing saving because it's *the simplest refrigerating mechanism ever built!* Only 3 moving parts, *including* the motor . . . permanently oiled . . . sealed against moisture and dirt. An exclusive Frigidaire economy advantage with unbeatable sales-closing power!

The 1937 Frigidaire Line includes

4 DeLuxe Models	5 Master Models	3 Special Models
5.1 to 8.25 cu. ft.	4.1 to 8.25 cu. ft.	5.1 to 7.2 cu. ft.

Imperial Model	The D3-37
13½ cu. ft.	3.1 cu. ft.

Proves COMPLETENESS NEVER BEFORE KNOWN IN ALL 5 BASIC SERVICES FOR HOME REFRIGERATION

1. **GREATER ICE-ABILITY**
   Ends "Cube-Struggle" and "Ice-Famine"! New Instant Cube-Release in all ice-trays. Automatic Tray Release. More *pounds* of ice...faster. Stores 100% more reserve ice-cubes. YOU'LL PROVE IT!
2. **GREATER STORAGE-ABILITY**
   New 9-Way Adjustable Interior! Adjusts like magic. Full-Width Sliding Shelves, 2-Way Cold Storage Tray, new Super-Duty Hydrators, Portable Utility Shelf. YOU'LL PROVE IT!
3. **GREATER PROTECT-ABILITY**
   Keeps food safer, fresher, longer! SAFETY-ZONE Cold at all times proved by the Food-Safety Indicator with dial on door*, always in sight. Also, 3 other zones of cold...for *every* protection need. YOU'LL PROVE IT!
4. **GREATER DEPEND-ABILITY**
   5-Year Protection Plan on the sealed-in mechanical unit! Sealed Steel Cabinet. Lifetime Porcelain or Durable Dulux exterior. Built and backed by General Motors. YOU'LL PROVE IT!
5. **GREATER SAVE-ABILITY**
   ONLY FRIGIDAIRE HAS THE METER-MISER.
   Cuts Current Cost to the Bone! Frigidaire with the METER-MISER saves enough to pay for itself, and pay a profit besides. YOU'LL PROVE IT!

*on all De Luxe and Master Models

FRIGIDAIRE ANNOUNCES a sensational new line...and the biggest, most dramatic selling program in its history

● YOU'LL DO STILL BETTER WITH FRIGIDAIRE IN 1937. Because Frigidaire is putting back of its sensational new line the most sweeping, far-reaching Selling Program in its history! Sales strategy which retains everything that shattered all sales records in 1936. Plus *new strategy* — built around "ALL 5 Basic Services for Home Refrigeration." Plus, also, the introduction of the new Instant Cube-Release —greatest improvement ever made in ice convenience! All backed by an even heavier, more concentrated advertising schedule!

Everything about the 1937 program is complete, dramatically presented, sales-compelling in the highest degree. We're all set to go! Watch Frigidaire selling men set the fastest pace on record! They're bound to do *still better* with Frigidaire in '37!

Watch for the smashing announcement ads appearing in 157 newspapers from coast to coast and in all these leading publications, *beginning March 7!*

The Saturday Evening Post	American Weekly
Collier's	This Week
Liberty	Good Housekeeping
Time	Woman's Home Companion
Cosmopolitan	McCall's
National Geographic	Holland's
American Home	The Graduate Group
Better Homes and Gardens	Electricity on the Farm

YOU'LL DO *Still Better* WITH FRIGIDAIRE IN '37

FRIGIDAIRE MADE ONLY BY GENERAL MOTORS

Georgia Power 1936 Household Sales Drop to 6,428

ATLANTA—Domestic electric refrigerator sales of Georgia Power Co. for 1936 dropped to 6,428 units, from a 1935 unit total of 8,740. Sales of other major appliances, however, exceeded those of the previous year by margains as high as 228%.

The company sold 6,646 ranges during 1936, as against the 4,932 sold the previous year. Water heater sales rose from 2,982 in 1935 to 3,965 last year. Washer sales nearly doubled last year, reaching a unit total of 1,413. Only 808 washers had been sold in 1935. Ironer sales for 1936 showed a 228% increase over the 1935 total of 144 units.

The utility's merchandise quota for 1937 includes 7,000 refrigerators, 6,500 ranges, 3,500 water heaters, 1,600 washers, and 400 ironers.

Dollar volume of the company's commercial refrigeration and air-conditioning sales for 1936 totaled $318,243.48. Refrigeration proper furnished the bulk of this total, with a dollar volume of $266,098.75 for the year. Volume of 1936 water cooler sales was $35,670.73, while air conditioning claimed $16,474 as its share of the year's grand total.

Value of commercial refrigeration and air-conditioning equipment sold by each of Georgia Power Co.'s divisions follows:

Atlanta division — refrigeration, $43,318.36; water coolers, $21,609.20; air conditioning, $1,875.60; Athens division — refrigeration, $16,661.55; water coolers, $1,734.50; Augusta division — refrigeration, $41,787.45; water coolers, $2,220.88; air conditioning, $3,735.80.

Columbus division — refrigeration, $67,289.62; water coolers, $2,850.68; air conditioning, $7,901.10; Macon division — refrigeration, $51,354.04; water coolers, $3,673.46; air conditioning, $2,475; Rome division—refrigeration, $42,687.73; water coolers, $3,582.01; ari conditioning, $486.50.

Capital City Distributors Occupies New Quarters

ALBANY, N. Y.—Capital City Distributing Corp., Apex electric refrigerator and RCA Victor radio distributor here, this week moved its entire operations into new quarters in a modern two-story building at 33 Orange St.

Officially opening the new quarters, which house its executive offices, showrooms, and service departments, the company held an open house party for its dealers Feb. 15. Max Landay and Max Hegleman head the Capital City Distributing Corp., which was established in 1931.

Montgomery Opens Roanoke Branch

ROANOKE, Va.—R. S. Montgomery, Inc., General Electric Co. distributor with headquarters in Richmond, Va., has opened a new sales office at 308½ Second St., here. No stocks will be carried at this branch.

H. B. Shaughnessy, formerly manager of western sales for the distributorship, is in charge of the local office. Fred Thompson has charge of the warehouse and commercial installations, here.

New Unit, Glass Wool Insulation In 1937 Crosleys

(Concluded from Page 1, Column 5)

unit is used with other standard models.

Cabinets have been restyled slightly, following the rounded, massive lines introduced in 1936, but with a more flattened top.

In its 1937 cabinets Crosley is using glass-wool insulation, which the manufacturer claims is moisture-proof, fire-proof, light in weight, and non-settling. This insulation is made into bats with all the fibers running in the same direction, and at right angles to the heat flow. Crosley used this insulation in its 1936 Koldrink bottle coolers.

Price range on the 1937 Crosley refrigerator line is from $99.50 (presumably for the Table Shelvador model) to $224.50. Prices on individual models have not been released.

The Shelvador is continued in all models as the ace Crosley convenience feature. A new "wrinkle" is provided in the form of glass dishes that fit in the Shelvador shelves. Other standard features include the feather-touch door handle, automatic interior electric light, and a built-in thermometer that shows the temperature in the food compartment.

An illuminated radio-type dial gives 18 cold-control positions with as many freezing speeds. The enlarged ice-cube compartments have quick-acting tray releases. Shelves of the deluxe models are of the flat-bar type.

Certain shelves tilt up for extra bottle storage, and there is a removable section in the bottom shelf of these models for storing roasts, etc. Six red Beetleware dessert or salad cups are provided to fit into the evaporator. In the deluxe models the Stora-drawer provides an ample place for non-perishable food. A vegetable crisper that is suspended on slides beneath a shelf and is easily removed or replaced is another convenience feature.

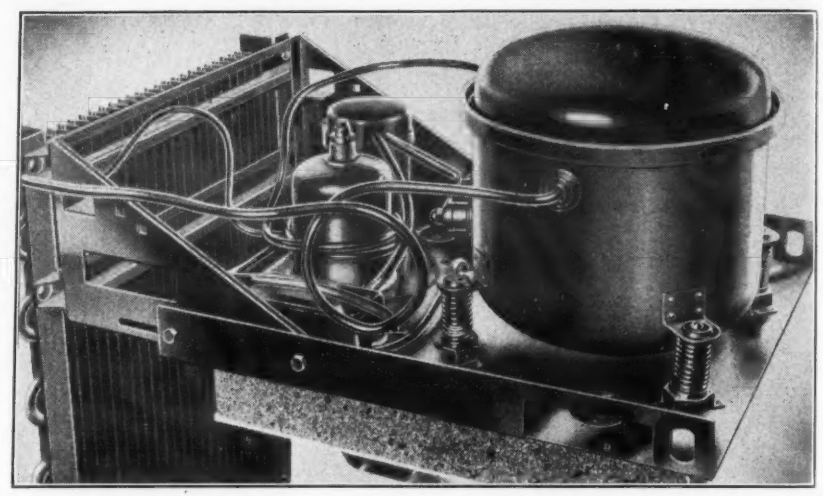
Hardware has streamline design, and is finished in bright chromium. Deluxe models have a blue inlay in the hardware. Door to the evaporator has a chrome satin finish.

One of the deluxe models features a built-in radio, with tuning dials in the top panel above the door.

Crosley's 'Console' Refrigerator

The movies and comic-strip cartoonists have depicted refrigerators that supplied music and radios that made ice cubes, but Crosley Radio Corp. has made the musical refrigerator a reality by introducing a built-in radio in one of its 1937 refrigerator models. Hyman Reader, president of Reader's Wholesale Distributors, the Crosley outlet in Houston, is shown demonstrating the model at a recent meeting of his organization attended by 500 dealers and their representatives. Standing behind Mr. Reader is H. F. Clayton, Crosley district manager.

New Unit for Crosley Deluxe Line



The "Electrosaver" refrigerating unit shown above is used on all 1937 Crosley deluxe models. The compressor is welded into the dome-shaped head. Note the condenser construction.

Key Specifications of 1937 Crosley Refrigerators

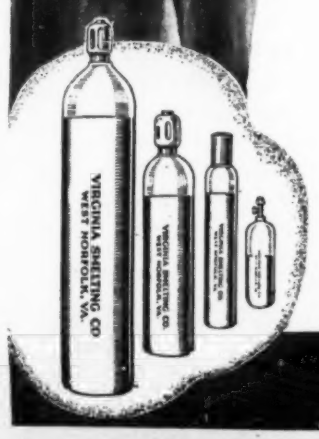
Model	Net Food Storage Capacity (Cu. Ft.)	Shelf Area Total (Sq. Ft.)	No. of Shelves	No. of Ice Cube Trays	No. of Ice Cubes	—Exterior Dimensions— Height Inches	Width Inches	Depth Inches
Standard:								
HB1-30	3.00	6.92	3	2	42	36	23⅝	25
HB1-31	3.16	7.24	3	2	42	46⅜	23⅝	27⅜
HB1-36	3.6	8.07	3	3	63	51⅛	23¾	24⅞
HB1-41	4.1	8.33	3	3	63	53⅞	23¾	24⅞
HB1-50	5.07	11.98	4	4	84	56½	27¼	24¼
HB1-60	6.0	14.43	4	7	168	58⅛	31	25⅝
HB5-71	7.1	16.77	5	7	168	58⅞	33¼	29⅛
Deluxe								
HL5-43	4.3	9.9	5	4	84	56⅜	23⅞	26⅝
HL5-50	5.03	12.62	5	4	84	56½	27½	26⅝
HL5-61	6.1	15.8	5	7	168	58⅝	29⅞	28⅞
HL5-71	7.1	16.77	5	7	168	58⅞	33¼	29⅛

SMART Hostess

TABLE AND TEMPERATURE all set!

The up-to-date hostess . . . and host . . . knows that the success of a party depends on the comfort of the guests. That's why so many smart homes are air-conditioned. In the winter . . . a warm, slightly *humid* air is most comfortable. In the summer . . . a cool, *dry* atmosphere is best.

ESOTOO and V-METH-L are universally accepted as leading refrigerants . . . pure, absolutely dry and dependable. They can enable air-conditioning engineers to produce any desired condition of the atmosphere in your dining room. Both ESOTOO and V-METH-L are instantly available for delivery from 72 distributing points here and abroad.



VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

Refrigerators Need NEW DOOR GASKETS

★ You never lack prospects for door gasket replacements. Today, right in your own community, one out of every four refrigerators is in need of this service—a service that you can supply at a profit.

Get in on the ground floor of this new and profitable business. Miller will relieve you of all product problems. From their simplified line of 20 gasket types, you can service 80% of all refrigerators, regardless of make.

The market is ready and waiting. It is your next move. Send for illustrated price list. If not obtainable through your local jobber, write direct.

THE MILLER RUBBER COMPANY, INC.
Akron, Ohio

IMMEDIATE DELIVERY
Miller
"Engineers in Rubber"

Going places AND HOW!

HA5 109 NL I EXTRA-SANDIEGO CALIF 8
RAY COSGROVE
WESTINGHOUSE E AND M CO MANSFIELD OHIO

RECEPTION OF NINETEEN THIRTY SEVEN WESTINGHOUSE REFRIGERATORS GREAT STOP UNIFORMITY OF DESIGN ENABLING US TO GET GREATER DISPLAYS AND LARGER INITIAL ORDERS THAN LAST YEAR STOP DEALERS CONSIDER WESTINGHOUSE THE LEADING LINE THIS YEAR OVER ALL OTHER BRANDS STOP HALL BLUE CHINAWARE MAKING A GREAT HIT WITH DEALERS AS A VERY ATTRACTIVE AND DISTINCTIVE ACCESSORY STOP GOVERNMENT PURCHASE EMPHASIZES PROVEN ECONOMY AND PARTICULARLY GOOD PUBLICITY FOR A NAVY CITY LIKE SANDIEGO STOP LOCAL PROVING KITCHEN BEYOND EXPECTATIONS IS PROVING OF KEEN INTEREST AND PERSONALIZES SALESMENS EFFORTS STOP HELLS KITCHEN STOP THEM STOP A GREAT PROMOTION STOP WITH ALL OF THESE GREAT HELPS WHAT MORE CAN WE ASK

ELECTRIC SUPPLIES DISTRIBUTING CO SAM L HALL

H49 64 DL-TD CLEVELAND OHIO 6 338P
RAY COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

NEW LINE OF REFRIGERATORS VERY IMPRESSIVE STOP WESTINGHOUSE TO BE CONGRATULATED ON THE ADOPTION OF DELPHINIUM BLUE ACCESSORIES AHEAD OF THE MARKET STOP THIS FEATURE WILL UNQUESTIONABLY BE COPIED REFRIGERATOR IN TEST KITCHEN SHOWING PHENOMENALLY LOW OPERATING COST STOP WESTINGHOUSE REFRIGERATORS WITH THEIR OUTSTANDING APPEARANCE AND PERFORMANCE AND SUPPORTED WITH AN AGGRESSIVE MERCHANDISING PROGRAM SHOULD GO PLACES IN NINETEEN THIRTY SEVEN

THE MOOCK ELEC SUPPLY CO G M NUTTER MGR

H135 50 DL-FI NEWYORK NY 8 410P
RAY COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

TREMENDOUS ACCEPTANCE AMONG DEALERS FOR NEW WESTINGHOUSE KITCHEN PROVED REFRIGERATORS STOP MORE AND BETTER DEALERS DISPLAYING LARGER NUMBER OF MODELS IN THEIR STORES THAN EVER BEFORE STOP TREMENDOUS PUBLIC INTEREST INDICATES GREAT VOLUME OF SALES EARLY SPRING STOP ORDER IN MAIL FORTY NINE CARLOADS OF REFRIGERATORS CONFIRMING TELEPHONE ORDER STOP

TIMES APPLIANCE CO E B INGRAHAM

HAD283 74 DLC 1 EXTRA-PHOENIX ARIZ
B 110P
R C COSGROVE
WESTINGHOUSE E AND M CO

RECEPTION OF 1937 WESTINGHOUSE REFRIGERATORS SURPASSES ALL EXPECTATIONS STOP DEALERS ENTHUSED OVER ATTRACTIVE APPEARANCE AND ADDED FEATURES AS WELL AS SNAPPY PROMOTION STOP GOVERNMENT ORDER AND KITCHEN PROVED PROMOTION IS OUTSTANDING STOP WOMEN EMPHATICALLY DECLARE THAT THE BEAUTIFUL DELPHINIUM BLUE CHINAWARE EXPRESSES THE LATEST IN ATTRACTIVE USABLE ACCESSORIES STOP SALES TO DATE MORE THAN DOUBLE ANYTHING PREVIOUS STOP URGENTLY REQUEST YOU RUSH CARLOADS AS ORDERED OUR STOCK PRACTICALLY EXHAUSTED

F G WAITE MGR

FG25 45 ALBANY NY
R C COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

THE HOTTEST LINE OF THE YEAR IS THE NEW NINETEEN THIRTY SEVEN WESTINGHOUSE REFRIGERATOR STOP OVER FOUR CARLOADS SOLD AT OUR DEALER MEETING STOP STYLING KITCHEN PROVED ECONOMY OF OPERATION GOVERNMENT ORDER AND SALES PROMOTIONS GREATEST FACTORS IN THE ENTHUSIASTIC RECEPTION ACCORDED BY DEALERS

H F WILLIAMS

HAD 150 48 DL MEMPHIS TENN 8 1048A
R C COSGROVE
WESTINGHOUSE ELEC & MFG CO

REFRIGERATION MEETING GREATEST EVER HELD ORDERS PLACED BY EVERY DEALER AT MEETING STOP PROVING KITCHEN TESTS SHOW MORE THAN THIRTY PERCENT INCREASE IN OPERATING EFFICIENCY HELLS KITCHEN GIVEN HUGE ACCEPTANCE WITH ORDERS FROM ALL MAJOR DEALERS MORE ENTHUSIASM EXPRESSED FOR NINETEEN THIRTY SEVEN THAN ANY PREVIOUS YEARS

MCDERMOTT

SER-TD NEWHAVEN CONN
R C COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

NEW NINETEEN THIRTY SEVEN WESTINGHOUSE LINE GREATEST SENSATION IN CONNECTICUT IN SEVEN YEARS STOP FD MODELS COMPLETE SENSATION SWEEPING ALL DEALERS TO NEW HEIGHTS OF ENTHUSIASM STOP ASSURE UNPRECEDENTED SALES VOLUME THIS YEAR NEW DEALERS CLAMORING FOR FRANCHISE IN ALL TERRITORIES

CONN ELEC REFG CO.

FG41 32DL PN BIRMINGHAM ALA
R C COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

WE ARE ALREADY SETTING NEW HIGH SALES RECORD WITH THE 1937 WESTINGHOUSE REFRIGERATOR STOP THINK GOVERNMENT ORDER PLUS KITCHEN PROOF STORY GUARANTEES BIGGEST WESTINGHOUSE REFRIGERATOR YEAR IN HISTORY

LEY HARDWARE CO.

FG31 43 - TOLEDO OHIO
R C COSGROVE
WESTINGHOUSE ELEC & MFG CO MANSFIELD OHIO

DEALER MEETING MOST ENTHUSIASTIC EVER HAD STOP HEAVY ORDERS PLACED INDICATE WE HAVE EVERYTHING THEY WANT STOP HELLS KITCHEN CLICKED LIKE A MILLION STOP ALREADY IN SEVERAL STORES PLEASE RUSH STOCK

THE J W GREENE CO MASON

EVERY HOUSE NEEDS • WESTINGHOUSE • WESTINGHOUSE ELECTRIC

Westinghouse

the Kitchen-proved REFRIGERATOR

Alaska Becoming Active Market

SEATTLE—Alaska is at last being considered seriously by electric refrigerator distributors in this territory as a splendid active market for their products.

Refrigerator salesmen returning from junkets through principal Alaskan cities bring back encouraging reports of sales and prospects in Juneau, Fairbanks, Anchorage, Cordova, and Ketchikan. These communities, expanding somewhat in population, are expanding even faster in their demand for electric refrigeration, according to these representatives.

Claude Messer, of Sunset Electric Co., recently completed an extended sales tour through Alaska and returned with enthusiastic reports supported by a good record of actual sales.

Increased population due to government colonization and increased need for extended food protection because of frequent west coast shipping strikes, has greatly enlarged the market for electric refrigeration in Alaska.

Recurrent shipping strikes have constituted a serious problem to Alaskans. Food shipments repeatedly have been delayed, and consequently it has often become necessary to preserve large stores of food in the home for extended periods of time.

Another factor aiding the development of the Alaskan refrigeration market is the steadily increasing rise in food prices. With food at a premium, it necessarily becomes essential to preserve it with a minimum of waste and spoilage. Hence appropriate refrigeration actually becomes a great economy as well as a convenience.

Local electric appliance organizations have begun to realize the possibilities of this new market.

RACI Offers $500 For Refrigerated Picnic Basket

CHICAGO—Refrigeration and Air Conditioning Institute is offering a cash award of $500 to the inventor of a refrigerated picnic basket compact enough to fit easily into the average car, roomy enough to hold a sizable lunch, and inexpensive enough so that it may be retailed at $20 or less, according to Ray D. Smith, president.

The refrigerating system of such a basket, Mr. Smith suggests, would probably be operated by the automobile's motor through a plug-in conveniently located on, perhaps, the dashboard. Insulation, he continues, would necessarily be important.

"The perennial enjoyment of picnics," says Mr. Smith, "has always centered about the outdoor lunch. But unfortunately, picnic lunches are not always as wholesome or tasty as they might be, due to lack of proper preservation during the trip. The answer is the refrigerated picnic basket."

Predicting a brilliant future for the inventor of such a device, Mr. Smith declares, "If anyone can develop this invention to fit the needs of the average picnic-goer, he will have not only our award of $500, but he will be the possessor of a notable invention and will be a person of considerable fame."

Leonard 4-Month Sales Up 249% over 1935

DETROIT—Shipments of Leonard electric refrigerators for the four-month period beginning Oct. 1, 1936, were 249% greater than those for the same period in 1935, reports R. I. Petrie, sales manager for Leonard.

Price Cutting Law Passed in S.D.

WASHINGTON, D. C.—Fair trade practice legislation, designed to prevent price cutting on nationally advertised products, was passed by one state legislature last week, advanced by lawmakers of a second state, and introduced in a third.

South Dakota became the 17th state to pass this legislation, modeled after a California law upheld by the United State Supreme Court, permitting manufacturers to contract with retailers to maintain specified minimum prices on nationally advertised products.

In Indiana, the senate on Feb. 8 passed a similar act, which now must receive the approval of the lower house. House leaders promised the senate measure would receive early consideration.

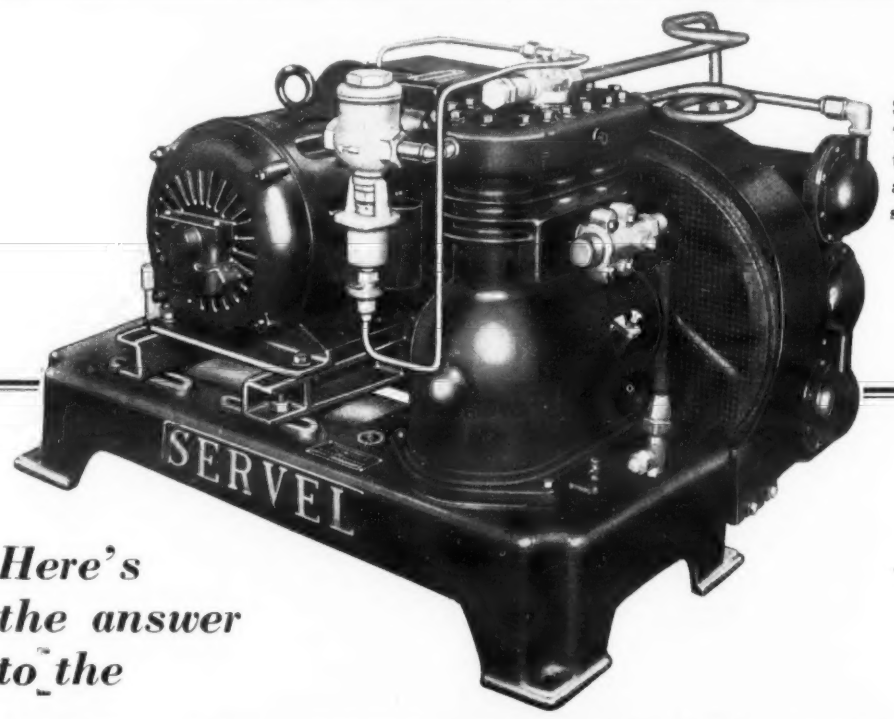
Similar legislation has been introduced in the Missouri legislature, but has not yet been acted upon.

Baltimore Kelvinator Personnel Named

(Concluded from Page 1, Column 2)

branch. Arthur A. Brandt, formerly refrigeration division, is general sales manager of the Washington, D. C. branch.

J. Wesley Young is sales manager of the wholesale refrigeration division of the Baltimore branch; A. J. Gibson is manager of the apartment house refrigerator division; Robert H. Nicholson, formerly connected with Frigidaire activities here, and Lewis Young, formerly associated with local General Electric refrigerator activities, are joint managers of retail sales; Lane Cook is manager of the commercial refrigeration division. J. P. Scott is factory district manager.



Servel Model WAO-750. For air conditioning large homes and average-sized stores & restaurants.

Here's the answer to the

BIG INTERMEDIATE AIR CONDITIONING MARKET *(4½ to 7 tons)*

VOLUME—Hundreds of applications in every city demand these sizes.

SALABILITY—The buyer decides quickly in this bracket.

PROFIT—Alert merchandisers get a fair price without haggling.

Servel's WAO series of air conditioning machines meet every requirement in the important intermediate field. These sturdy, powerful models are available with standard water-cooled condensers or with Servel's efficient new atmospheric condensers. Twelve standard machines effectively cover all capacity requirements from 1/2 ton to 20 tons.

In addition to the models designed especially for air conditioning duty, Servel manufactures a complete line of standard commercial refrigeration products.

Write today for complete information. Servel, Inc., Electric Refrigeration and Air Conditioning Division, Evansville, Indiana.

SERVEL

COMMERCIAL REFRIGERATION AND AIR CONDITIONING

Detroit Engineers Name New Officers

(Concluded from Page 1, Column 1)

of the News, secretary; and F. B. Riley, Riley Engineering Corp., treasurer.

F. R. West, consulting engineer, was named chairman of the membership committee, and H. F. Hutzel of Kelvinator Corp. chairman of the program committee, with Dr. L. A. Philipp, also of Kelvinator, as vice chairman.

After some discussion, it was decided that topics for future meetings would be based on suggestions made by members to the program committee chairman. It was also decided upon to make the meetings of the "open forum" type, wherein all those present are given the opportunity to take part in the discussion, instead of a presentation by a single speaker.

The third Friday of the month was selected as the regular meeting date for future meetings, which will probably be held in the News offices.

Those who registered at the meeting include:

G. H. Adler, Servel, Inc.; David E. Alton; Norman A. Baker, Norge Corp.; C. F. Belshaw; F. L. Bennett; N. J. Bohn, Kelvinator Corp.; John Brey, Atmospheric Control Co.

George B. Bright, Detroit Ice Machine Co.; E. H. Davey; W. C. Dever; R. C. Doremus, Detroit Ice Machine Co.; Morrill Dunn, McCord Radiator & Mfg. Co.; William M. Dunn, McCord Radiator & Mfg. Co.; Don G. Ellis, Kelvinator; Frank M. Eversden, Borg-Warner Refrigerator Parts Co.; Joe Fognini; Leno Fognini.

C. M. Gilbert; J. E. Gray, Mueller Brass Co.; James B. Haviland; C. A. Hill, Mueller Brass; H. H. Hill; H. F. Hutzel, Kelvinator; A. M. Janasik, Kelvinator.

Charles E. Johnson, Universal Electric Products Co.; Hugh E. Keeler, Professor of Mechanical Engineering, University of Michigan; L. S. Keilholtz, Airtemp Division, Chrysler Corp.; George R. Kingston, Kelvinator.

A. E. Knapp, Kelvinator; James R. McCallum, Chrysler; H. M. McGaughey, Kelvinator; F. W. McMillan, McCord; G. J. Monteith, McCord; R. W. Morgan, Kelvinator; Emmet J. Mueller.

A. F. Nelson, Riley Engineering Corp.; H. George D. Nutting; J. M. Oberc, J. M. Oberc, Inc.; G. Roy Ohmart, Kelvinator; L. A. Philipp, Kelvinator; S. L. Potts, Bryant Heater Co.

F. B. Riley, Riley Engineering; B. B. Schuett, Long Mfg. Co.; Frank A. R. Smith; Robert N. Stewart; B. E. Tiffany, Norge; Paul H. Turnquist, Cass Technical High School; LeRoy A. Volberding, Norge.

F. R. West, Detrola Radio & Television Co.; S. A. Whitt, Kelvinator; D. D. Wile, Detroit Lubricator Co.; John Wyllie, Jr., Temprite Products Corp.

Fiske on Two-Month Lecture Tour

NEW YORK CITY—David E. Fiske, executive secretary of American Society of Refrigerating Engineers, last week began a two-month tour, during which he will deliver addresses on refrigeration before engineering groups and university students.

From Milwaukee and Chicago, where he began his trip Feb. 17 and 18, Mr. Fiske's itinerary carries him west to Los Angeles, where on Mar. 2 he will address a meeting sponsored by W. T. Holladay, of the George Belsey Co., and J. C. Blair, chairman of the local A.S.R.E. section.

After visiting other west coast cities, Mr. Fiske on Mar. 10 will address students of the University of Texas in Austin, Tex. In Dallas, he will speak before a meeting chairmaned by T. C. Carraway, consulting refrigerating engineer. In Kansas City, E. M. Dodds, former director of A.S.R.E., and now president of U.S. Cold Storage Co., is organizing a meeting and inspection trip Mar. 12.

In Atlanta on Mar. 17, local refrigerating men will hear Mr. Fiske at a meeting planned by C. T. Baker, consulting engineer. The St. Louis section of A.S.R.E., headed by Chairman F. C. Laufketter and Secretary H. J. Kipp, will be his host on Mar. 15.

Mr. Fiske will supplement his talk before A.S.R.E. groups with a report of his trip to the VIIth International Congress of Refrigeration held last summer at The Hague, Holland.

Dividends

Nash-Kelvinator

DETROIT — Nash-Kelvinator Corp. on Feb. 20 paid a dividend of 25 cents a share to stockholders of record at the close of business Jan. 30, 1937. This was the first dividend declared by the new firm which was organized out of the merger of Nash Motors and Kelvinator Corp.

C.I.T.

NEW YORK CITY—Directors of Commercial Investment Trust Corp. recently declared the regular quarterly dividend of $1.00 per share in cash on common stock, payable Apr. 1, 1937 to stockholders of record Mar. 5, 1937.

The regular quarterly dividend of $1.06¼ on the convertible preference stock, $4.25 series of 1935, was also declared payable Apr. 1, to stockholders of record Mar. 5.

G-E Resale Operation Dropped by Macy's; Brand Line Offered

(Concluded from Page 1, Column 3)

7, $192.95. These prices, according to reports, are approximately 6% less than prices on equivalent sized General Electric models being sold in the New York area.

Flatop models in the Supremacy line have open type units. The models have different cabinet interior arrangements and different types of hardware from those featured in the General Electric line. All Supremacy models are covered by a 5-year protection plan.

Under the new merchandising set up, all salesmen in the appliance department may now sell all lines of equipment carried by Macy's. Previously the G-E products were sold only by Rex Cole salesmen and the store's appliance men were confined to the store's own gas range, cleaner, and laundry equipment department.

Rex Cole salesmen will be retained on the selling staff, it is reported. The entire appliance sales force of 200 men is now under the direct supervision of Fred Fox. According to present plans, the store's sales policy covering outside canvassing and follow-up on store leads will be continued, it is reported.

Macy's arrangement with Rex Cole, Inc., by which it merchandised G-E products previous to the change, dated from April, 1935. The department store carried Flatop models only until June, 1936, when it added the G-E Monitor Top line, after Abraham & Straus, Brooklyn department store, gave up its exclusive franchise on the Monitor Top line.

Apex Advertising to Be Doubled in 1937

BROOKLYN—With its refrigerator sales running approximately 200% ahead of those for last year, and substantial increases shown on washing machine, ironer, and vacuum cleaner sales, Apex Electrical Mfg. Co. will increase its advertising 100% during 1937, John W. Walter, sales manager in this metropolitan area, told 300 Apex dealers who attended a three-day sales convention held at the Granada here recently.

Newspapers, magazines, and trade papers will be used in the company's new advertising program. A major part of the newspaper campaign will be run on a cooperative basis with Apex dealers, Mr. Walter said.

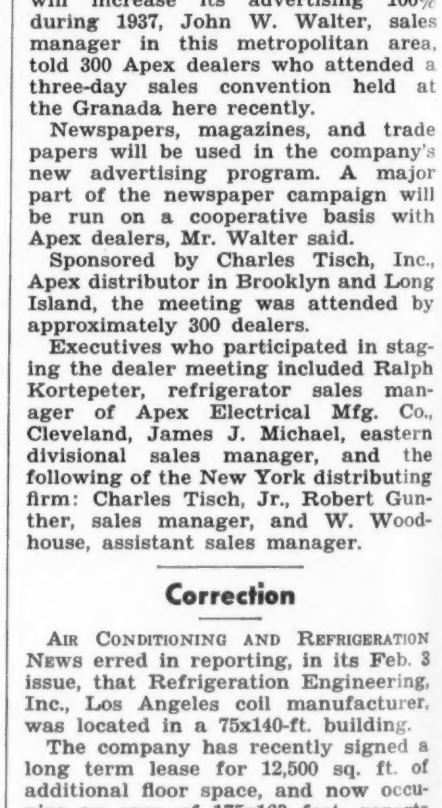
Sponsored by Charles Tisch, Inc., Apex distributor in Brooklyn and Long Island, the meeting was attended by approximately 300 dealers.

Executives who participated in staging the dealer meeting included Ralph Kortepeter, refrigerator sales manager of Apex Electrical Mfg. Co., Cleveland, James J. Michael, eastern divisional sales manager, and the following of the New York distributing firm: Charles Tisch, Jr., Robert Gunther, sales manager, and W. Woodhouse, assistant sales manager.

Correction

Air Conditioning and Refrigeration News erred in reporting, in its Feb. 3 issue, that Refrigeration Engineering, Inc., Los Angeles coil manufacturer, was located in a 75x140-ft. building.

The company has recently signed a long term lease for 12,500 sq. ft. of additional floor space, and now occupies an area of 175x163 feet, reports H. T. Jarvis, an official of the firm.



Frigidaire Puts New Small-Size Bottle & Pressure Water Coolers on Market

DAYTON — For distribution through its household refrigerator dealers, Frigidaire Division of General Motors Sales Corp. has placed on the market for 1937 a pressure and a bottle type water cooler, available in either white Duco or bronze finish, and selling for $104.50, installed in Zone 2, including five-year protection.

The coolers have a capacity of 1½ gallons—50 cups—per hour, and provide storage of half a gallon of cold water for immediate consumption. All parts of the cooling chamber are plated to prevent corrosion, and are easily accessible for cleaning.

Faucet on both models is of the push-button type. The aluminum alloy non-corroding drip basin holds seven pints of water, and either may be connected to the plumbing or removed for emptying.

Pressure type cooler, Model WP-2A in white Duco (P-2A in bronze finish) is designed for permanent installation, and is furnished complete, ready for connection to city water-pressure system. Height of the cooler is 41 inches; width at the base, 18 inches.

The bottle type cooler, Model B-2A in bronze or WB-2A in white Duco, is completely portable, and accommodates either a 2½ or 5-gal. bottle of water.

No plumbing connections are required, and the unit may be placed in operation simply by plugging into an electric outlet. The unit is constructed to permit change-over to the pressure type, if so desired later on. Height of the cooler, with 2½-gallon bottle, is 54 inches; width, at base, is 18 inches.

Base of both models is finished in black porcelain. Cabinets are of the cylindrical streamlined type, trimmed in chrome.

COMMERCIAL REFRIGERATION

Handles Delco-Frigidaire

L. C. KOHLMAN

* * *

Kohlman to Distribute Delco-Frigidaire In Chicago

CHICAGO—Latest firm to enter the refrigeration and air-conditioning field here is L. C. Kohlman, Inc., opened recently at 816 W. Washington Blvd., by L. C. Kohlman, who, previous to forming his own company, was for 10 years connected with the Chicago General Electric distributorship.

Handling Frigidaire and Delco-Frigidaire products, the firm will specialize in the sale and installation of air-conditioning, commercial refrigeration, and Delco heating equipment, and will maintain its own engineering and service department.

The firm's new quarters contain 7,500 sq. ft. of floor space arranged to provide private offices, a large display room, a salesman's meeting room, and a service department which contains a complete stock of equipment and operates on a 24-hour policy.

The engineering department is segregated from other department so that the firm can give concentrated attention to each customer's requirements.

Present personnel of the firm includes 23 men, and will be augmented as business expands, declares Mr. Kohlman.

Humphreys Installs Storage Equipment for 1200 Furs

CONCORD, N. H.—H. E. Humphreys, Servel commercial distributor in this territory, recently completed installation of a system providing cold storage facilities for 1,200 fur coats in a local business house.

Equipment consisted of an ACO-301 conditioner and a WO-300 machine unit, to be operated by a two-speed motor and suitable controls.

Kold-Hold Introduces Ice Cream Cabinet Conversion Units

LANSING, Mich.—A new line of ice cream cabinet conversion units, constructed entirely of rust-proof steel, has been announced by Kold-Hold Mfg. Co.

These units may be quickly installed in the standard cabinet which now contains a sleeve type brine tank, with a resultant increase in capacity and decrease in operating cost, the company asserts.

After the top assembly, boiler, and sleeves of the original cabinet have been removed, the liner repaired and repainted if necessary, the Kold-Hold unit is dropped into place and fitted to the interior.

The new units have an adjustability of 6 inches in length, and 3¾ inches in width. Removal of the feet decreases the height of the unit by 2 inches. Consequently, no cutting of the frame is required.

Connections are so arranged that refrigerating tubing will enter the cabinet through the present boiler head hole without otherwise disturbing the existing construction. All connecting tubing is protected by tubing shields.

Cabinet temperatures under the new system can be maintained within the desired range by the same pressure or thermostatic controls employed with the original system. Thermostatically-controlled expansion valves or high side floats can be used.

Conversion units for single row cabinets are available in two, three, four, and six-hole sizes; those for double row cabinets in four, six, 10, and 12-hole sizes.

Mooney Heads Carrier Dealer Development in Midwest

CHICAGO—Mark E. Mooney has been appointed to handle dealer development for Carrier Engineering Corp.'s commercial refrigeration division in the territory extending from Detroit to Kansas City. The appointment is effective Mar. 1. Mr. Mooney will maintain headquarters at the Carrier office here.

For the past four years Mr. Mooney has been connected with the commercial refrigeration division of General Electric Co., serving in both Cleveland and New York City.

General Import Changes Name To Undabar Cooler Corp.

ST. LOUIS—Name of General Import Co., manufacturer of Undabar bottle beverage coolers, was changed to Undabar Cooler Corp. as of Jan. 1, 1937, George V. Steffens, president and general manager of the company, has announced.

The company's products are distributed nationally through General Electric distributors and dealers.

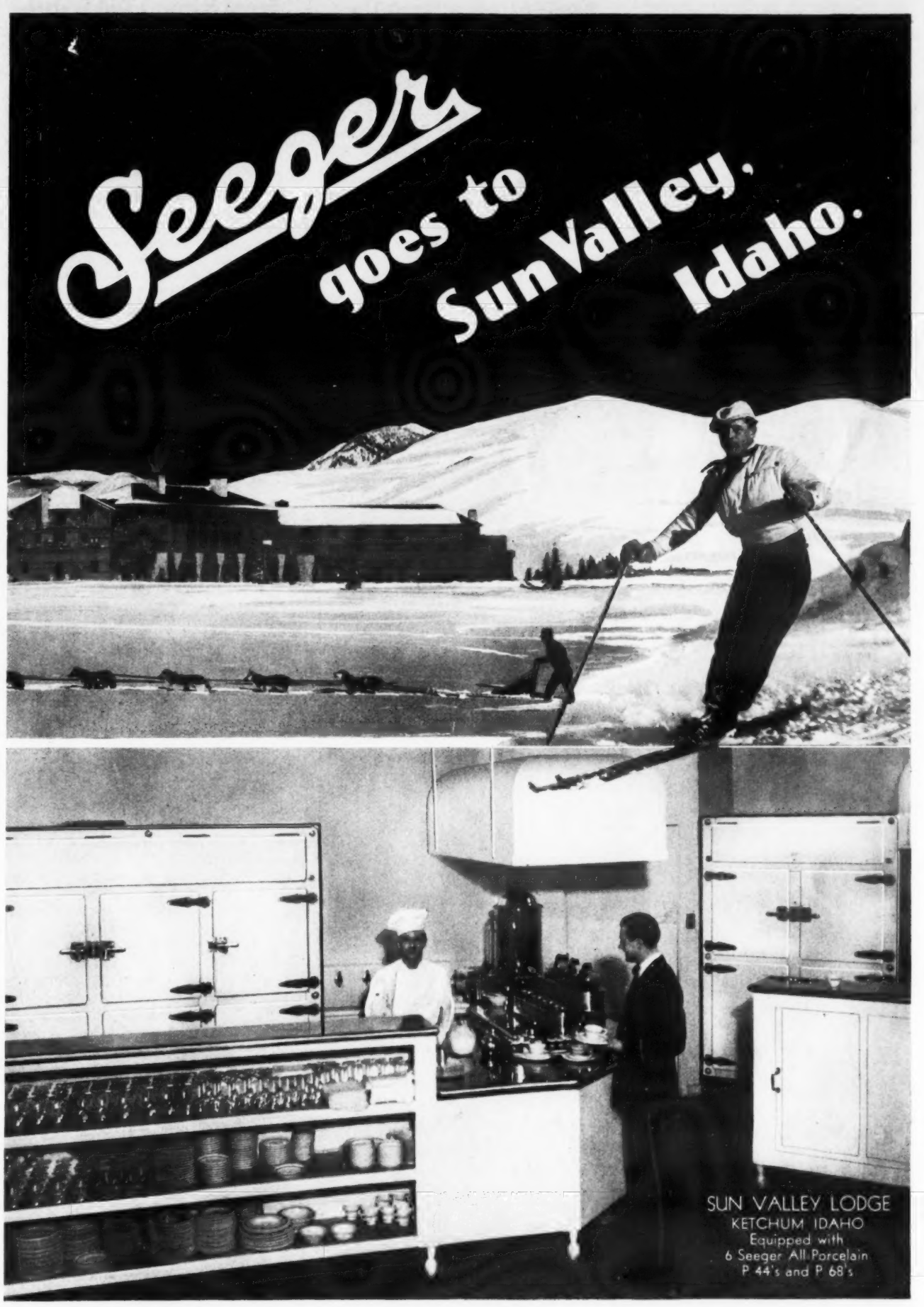
"Every dollar counts in the restaurant business—and our electric bills have been much smaller since we installed our Copeland unit."

Hotels, restaurants, soda fountains, dairies—thousands of them everywhere testify to the trouble-free economy and efficiency of Copeland commercial refrigeration units.

Write for our Sales Plan

COPELAND

REFRIGERATION CORPORATION . . . DETROIT, MICHIGAN



- - - and swimming, too!

Sport loving America O. K.'s good management, and good management at Sun Valley Lodge O. K.'s Seeger Cabinets. WHY? Because famous hotels and restaurants, the country over, know the dependability and economy of the famous Seeger Cabinets.

Year in and year out, the hotel kitchen will give a refrigerator cabinet a genuine "work out"—Seeger all-porcelain Cabinets will take that "work out" to the management's everlasting satisfaction.

SEEGER REFRIGERATOR COMPANY

SAINT PAUL, MINNESOTA

New York — Boston — Chicago — Los Angeles — San Francisco

Special Representatives:

Meyer Smith Co., Buffalo, N. Y. Seeger-Philadelphia, Inc., Philadelphia, Pa.

Minnesota U. to Give Course In Ice-Cream Making

ST. PAUL—The University of Minnesota will conduct a course for ice cream manufacturers and counter freezer operators, March 15-20.

Subjects to be covered in lectures and laboratory periods of the course include the composition and food value of milk and ice cream, the bacteriology of ice cream, the selection of ingredients and preparation of ice cream mix, pasteurization, homogenization, and freezing.

Advertising and merchandising will also be discussed.

Enameled Metal Panels Dress Up Grocery Store Cooler

PENSACOLA, Fla. — Enameled metal panels add a decorative note to the exterior of the cooling rooms of the Delchamps Grocery Co. here.

The coolers are of regular design and construction, but are faced with blue enameled metal panels furnished by Warren Mfg Co., Atlanta, Ga., builder of corkboard insulated refrigerated and display cases.

The center section of this paneled surface has a walk-in cooler door and two reach-in cooler doors.

Servel Names 3 Distributors In Pennsylvania

EVANSVILLE, Ind.—The Pittsburgh Refrigeration Co., the Philadephia Electric Appliance Co., and the Bodwell Co., Harrisburg, have been appointed distributors of Servel commercial refrigeration equipment.

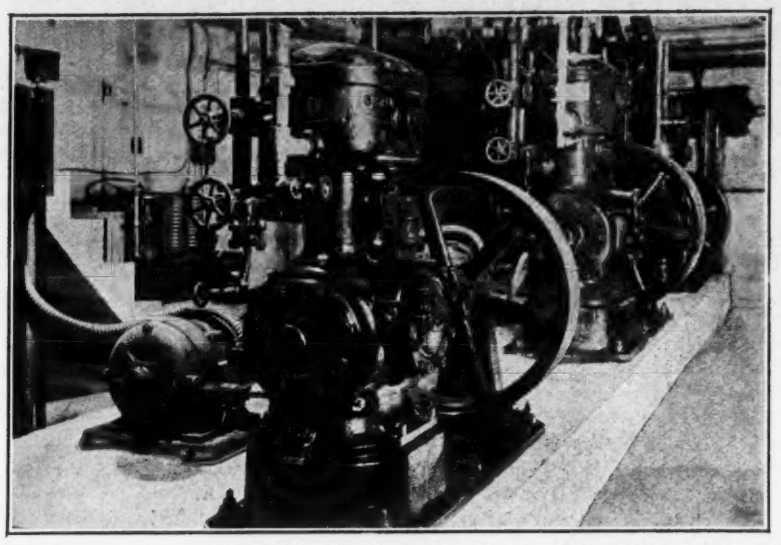
Brunswick Leases Space In North Arlington

NORTH ARLINGTON, N. J.—The ground floor of a two-story brick building at 28 Argyle Place here has been leased by Brunswick-Balke-Collender Co. of New York City for the distribution of refrigeration parts in this area.

Viennese Engineer Visits Servel's Evansville Plant

EVANSVILLE, Ind.—Walter Kohn, consulting engineer of Vienna, Austria, is spending several weeks at the Servel factory here, studying American methods of manufacturing.

Refrigerating Equipment in Macon Market



Frick ammonia machines (in the foreground) furnish refrigeration for the storage room and ice-making equipment. In the left background may be seen the methyl chloride unit which cools the display cases.

* * *

coils. These indicate the use of a low pressure refrigerating machine instead of the ammonia which is used throughout the rest of the installation. A 2-hp. methyl chloride unit was accordingly installed.

There are three ammonia machines, one of 5 by 5-inch size, and two with cylinders of 4-inch bore and 4-inch stroke.

Three insulated suction lines, with cross connections at each machine, permit the division of the load between any or all of the compressors as desired. This is especially advantageous since the air-conditioning work is carried at a suction pressure of 60 lbs., the ice tank and the freezer room at 15 lb., and the storage room at 37 lb.

Each load is balanced with thermostatic valves operating electric ammonia feed valves, and accumulators prevent the flooding back of the liquid refrigerant.

(Concluded on Page 9, Column 1)

COMMERCIAL REFRIGERATION

Full Use of Refrigeration Demonstrated In Five-Fold Service of Equipment In New Macon, Ga., Market

MACON, Ga.—An outstanding example of what refrigeration can do, when fully made use of, is to be found in the Mulberry Market here.

In this food store, brand new from the ground up, and equipped with every modern appliance, refrigeration performs a five-fold service. It provides year-round air conditioning of the main store and office; it makes ice in 100-lb. blocks; it holds required temperatures in four large storage rooms for meats, sausage, vegetables, and dairy products; it keeps a freezer room at 5 to 10° F.; and it cools 48 feet of display cases in the meat department of the store.

The air-conditioning feature is doubly appreciated in the warm climate of central Georgia. Through the long summer season the temperature and humidity is automatically controlled by what is known as a compensated system. This provides a sliding difference between the outdoor and indoor temperatures, so as to insure the maximum comfort for patrons entering and leaving the store. This differential, or range between the conditions outside and those inside, can be adjusted to any desired amount.

Air-conditioning equipment is located in what would otherwise be unused garret space. Furnished by the Buffalo Forge Co., this unit circulates 4,000 c.f.m. of air, 35% of which is fresh air. The unit has a steel coil carrying direct expansion ammonia at 40° F. for cooling service, while a steam heating coil and a humidifier cares for winter needs.

Conditioned air is distributed through ducts and grilles to the store and office, the fan being driven by a 1½-hp. motor.

The ice-making tank is located alongside the refrigerating machines, in a basement room at the rear of the store. The tank containing the brine cooling coils and the 15 ice cans in which the ice is frozen, was assembled at the factory before being shipped. The coil is of the standard VW type, the ammonia expansion being under float-valve control.

An agitator keeps the brine in circulation and there is also a small can filler. The ice is useful for arranging displays of meat, fish and fresh vegetables, as well as in making shipments throughout the surrounding section.

The freezer room measures 12 by 16 ft., and has a ceiling 10 ft. 3 in. high under which are hung four rows of VW coils. These have a total surface of 496 sq. ft., and due to the ample space between the pipes for air circulation and the large amount of liquid ammonia with which are kept flooded by the electric control valve, are said to be exceptionally effective.

Main meat storage room measures 23 by 32 ft. by 10 ft. and 6 inches, and is equipped with overhead tracks from which the meat is hung. Sides of beef, fresh killed pork, veal, lambs, poultry and other meats are held in this room without a trace of fog.

Cooling is accomplished through a Buffalo brine spray unit, which keeps 3,600 cu. ft. of air in circulation per minute. The temperature is held at 34 to 38° F. A thermostatic valve and small accumulator govern the ammonia feed to the unit.

Similar coolers and controls are installed in the other storages. The sausage room, measuring 11 by 16 ft., is kept at 34 to 38° F.; the vegetable room, 11 by 15 ft., at 34-38° F.; and the general service cooler, 12 by 15 ft., at 34-38° F.

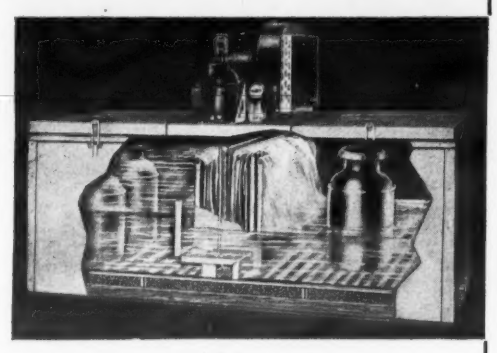
The display counters include four 12-ft. Hill cases, equipped with finned

Rapid Milk Cooling of

NEW

ZERO-FLOW

Means Rapid Dealer Sales



DEALERS find the **new** ZERO-FLOW sells itself. A single demonstration proves the extra convenience, economy and efficiency for the modern dairyman. ZERO-FLOW's new cooling principles will meet the strictest milk temperature requirements. Regardless of the number of cans, both evening's **and morning's** milk have constant level of flowing, icy-cold water encircling cans up to their necks (made possible by revolutionary construction of Verti-Coil and Circulator in cooling compartment). ZERO-FLOW assures **rapid** cooling of milk to below 50° with minimum running time on compressor. ZERO-FLOW means rapid SALES for dealers because of exclusive cooling features never before available. Write for proposition today.

WILSON CABINET CORP.
114 MAIN ST, SMYRNA, DEL.

PELCO makes and releases its own floating ice in upper compartment. Cools quickly and uniformly.

PELCO *Electric* Beverage-Food COOLER

Cools faster because it makes FLOATING ICE

Cools bottled beverages from room temperature to desired degree in approximately 30 minutes . . . cools every bottle to the same degree. 9 stages of cold control—the owner chooses the temperature at which PELCO operates . . . a money-maker for tap rooms, hotels, restaurants and lunch rooms—anyplace that sells food and bottled beverages is a prospect. Requires no installation . . . simply plug into any light socket.

Another Exclusive SALES ADVANTAGE

2 units in 1! The fastest bottled beverage cooler made plus an efficient refrigerator for foods or for pre-cooling bottled goods.

Complete Line— PROFITABLE VOLUME at once!

Just count the prospects near you! PELCO has a complete line—a size to meet every requirement. Designed and produced by a reliable concern maintaining precision standards—backed by aggressive merchandising helps.

•

Write or wire Dept. A-27 for full details.

Refrigerator Division
PORTABLE ELEVATOR MFG. CO.
ESTABLISHED 1899
BLOOMINGTON, ILLINOIS

The *NEW*

KOLD-HOLD TRADE MARK

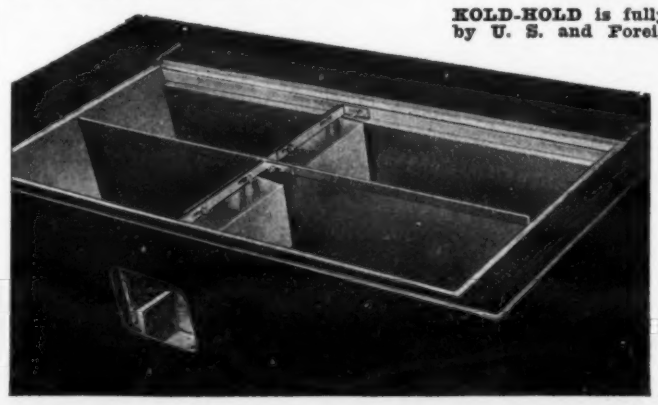
ICE CREAM CABINET CONVERSION UNITS

CAN BE INSTALLED IN SHORT ORDER
IN ANY STANDARD CABINET—AT SMALL COST
CONVERTING IT FROM A
LEAKY, MESSY "HAS-BEEN"
TO A CLEAN, DRY EFFICIENT CABINET
ONE THAT PROVIDES IDEAL
TEMPERATURE UNDER ALL CONDITIONS
COSTS LESS TO OPERATE
HAS GREATER CAPACITY

Write at once for Prices and Details

KOLD-HOLD MANUFACTURING CO.
R. E. OLDS, CHAIRMAN LANSING, MICH.

KOLD-HOLD is fully protected by U. S. and Foreign Patents



All-Steel Construction Rust-Proof Finish

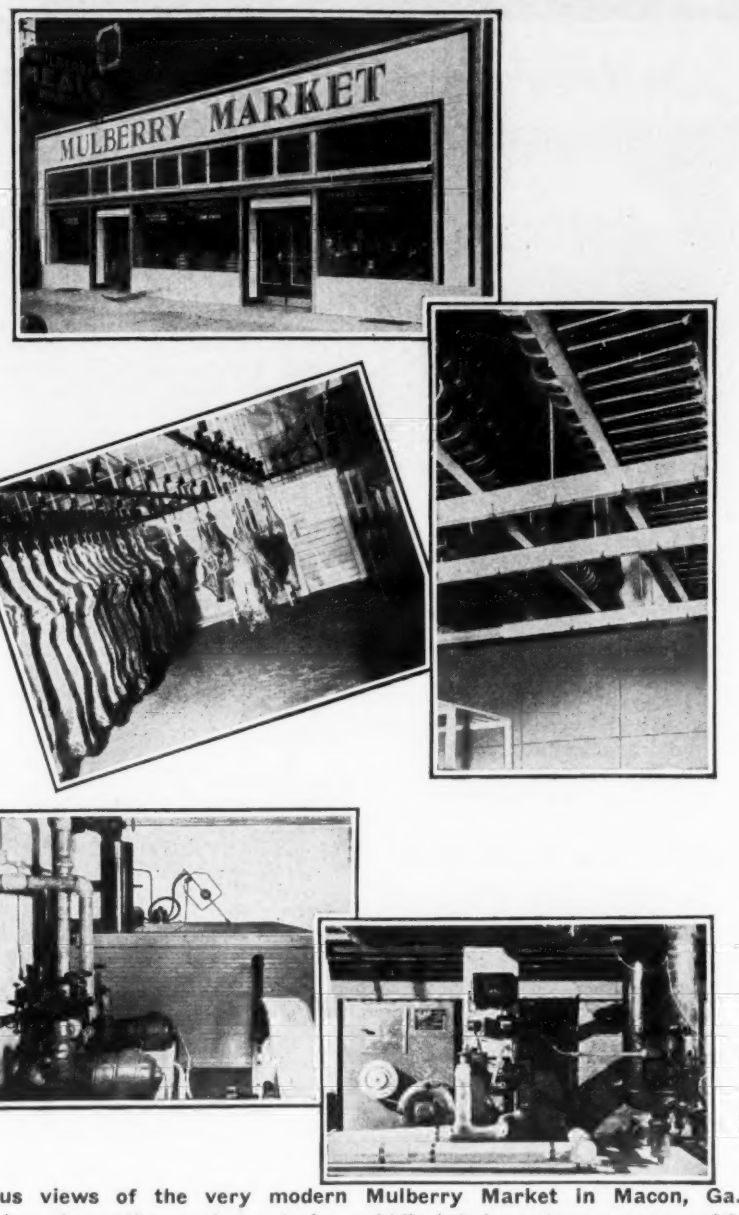
•

Quickly Adjustable for Length, Width, Height

•

Uses Present Controls

Outside and Inside a Modern Market



Various views of the very modern Mulberry Market in Macon, Ga. Top view shows the market exterior, middle left is a storage room, with ammonia pipes shown at the right. Below are shown the ice-freezing tank and the pump equipment.

Cooling Tower Used In Market Job

(Concluded from Page 8, Column 5)

The condenser and receiver are mounted on steel stands at the end of the machine room, while on the roof of the building is a cypress-cooling tower which furnishes 200 gallons of cold water per minute for condensing purposes.

This tower has 11 slotted decks, a steel pan underneath, and was built by the Davidson-Kennedy Co. of Atlanta, who designed and executed the entire installation. The refrigerating equipment was furnished by the Frick Co.

McQUAY McQUAY

McQUAY
Products for
COMMERCIAL REFRIGERATION

Unit Coolers

Available in seven sizes for storage rooms, trucks, etc.

Evaporator Coils

Evaporator Coils of Standard sizes, as well as specially designed for any specific commercial refrigeration application.

Coils and Coolers are available for all types of refrigerants, including ammonia.

WRITE for New Catalogs on McQUAY Unit Coolers, Comfort Coolers, Cabinet Concealed Radiation, Refrigeration Coils, Ice Cube Makers, Air Conditioning Coils, Blast Coils, Combination Heating and Cooling Units, Suspended and Floor Type Blower Coolers, Cabinet Floor Type Room Coolers, Etc.

McQUAY Inc.
MINNEAPOLIS MINNESOTA.

McQUAY McQUAY

1937 Commercial Line Offered by Puffer-Hubbard

MINNEAPOLIS — Puffer-Hubbard Mfg. Co. has placed on the market its 1937 line of refrigerated display cases, walk-in coolers, and commercial cabinets. The display cases are offered in lengths varying from 6 to 14 feet, and in capacities ranging from 24 to 90 cu. ft. Capacities of the reach-in cabinets vary from 24 to 67 cu. ft.

Two lines of display cases are offered, line "D" and line "P." The exterior of line "D" models is of white porcelain and Dulux, with base of black porcelain and back of black Dulux. The interior is fitted with heavy tinned wire shelves. All walls exposed to public view are white porcelain. The lower storage compartment is lined with heavy galvanized steel covered with white Dulux. A hardwood slatted rack is built up to allow free circulation of air in the bottom of the case.

Exterior of models in line "P" is finished in white and black porcelain with the exception of the rear portion under the wrapping board. This section is black Dulux. The interior is the same as in line "D" except that perforated white porcelain shelves are used.

The wood frame of all models is constructed of northern spruce and white maple, which has been moisture-proofed by dipping it in penetrating oil. This treatment also protects the frame against deterioration or dry rot. The cases are insulated with 3 inches of Armstrong cork-board sealed with Korite and double water-proofed paper. Only cork contacts the interlining, to reduce the possibility of exterior sweating during hot weather.

Sliding doors are mounted on stainless-steel rollers and equipped with triple glass and a patented anti-fogging system to prevent the accumulation of moisture between glass.

Cases are lighted through a system of the exterior reflector type, the front glass being fitted with a glare shield. There also is a light in the storage compartment. Individual switches for top and interior lighting are mounted in the rear center section of the case, together with an electric scale socket.

The coil baffle is of heavy steel with ¾-inch cork insulation and drains to both ends. Upper baffle is designed with auxiliary anti-drip feature.

Coils themselves are built into the case and the connection between top and bottom coils provides for an expansion valve. Coils are guaranteed, provided a compressor of sufficient capacity has been properly installed, to give proper refrigeration, circulation, and humidity. Over-capacity coils are used to insure defrosting cycles even during extreme high temperatures or unusually heavy service. Full length drier tubes are built into the bottom coils.

All sections of P-H sectional walk-in coolers are designed with step locking joints which automatically become tightly sealed when the coolers are assembled. The coolers are designed in various sizes for storage of all types of perishable goods. Either fin coils or forced air circulation may be had.

Commercial cabinets have many of the same features as the display cases. These cabinets are furnished with either solid or glass service doors. The company claims that its top bunker design, with direct down-flow air baffles, reduces operating cost and gives even and complete circulation.

These cabinets are wired for light control, the switch being located between the doors. Shelves are of heavy tinned wire, equipped with a special adjustable feature so that all shelves may be raised or lowered.

The cabinets are insulated with 3 inches of Celotex, sealed in the same manner as the cork insulation of the display cases. Double-steel coil baffles are employed, with ¾-inch insulation and down-flow circulation. The triple-glass doors have the same anti-fogging system as the display cases.

THE LIGHTWEIGHT
ALL-STAMPED STEEL BASE
CONTRIBUTES TO

BRUNNER RUGGEDNESS

Throughout the many years of continuous service built into this Brunner condensing unit, its all-stamped steel base—with no seams to weaken or spread—completes the all'round ruggedness of the unit itself. This particular type of base also safeguards each Brunner unit against breakage in shipment. * * * You'll find some Brunner feature, like this particular one, excelling in every phase of manufacture. Counter-balanced reciprocating parts, for example, machined to close tolerances reduce vibration and wear to a new low... positive "Brunner-seal" insures constant crankcase pressure... special valve-in-head design simplifies valve replacements—these and scores of other Brunner advantages team up to deliver low-cost refrigeration dependably. * * * Let us explain in detail Brunner refrigerating and air conditioning equipment—forty-seven condensing units and five compressor models in a range from ¼ H.P. to 15 H.P. Brunner Manufacturing Co., Utica, N.Y., U.S.A.

BRUNNER

BUILDS FOR *Greater* DEPENDABILITY

Competition Keen in Colombia, Despite Public Apathy to Refrigeration, Consul Reports

BOGOTA, Colombia—Keen competition exists in the refrigeration and radio field in this country, and practically all the important manufacturers of these items are covering the leading commercial districts here, according to U. S. Commercial Attache Clarence C. Brooks.

More than 25 different makes of radio receiving sets are being offered in Bogota, Mr. Brooks reports, and there are seven or eight firms selling electric refrigerators here, in spite of the fact that climatic conditions are such that most of the population does not consider refrigeration essential for food preservation or beverage preparation.

Prices, an important factor in this market, have been fairly well maintained to date in the radio and refrigeration fields, but it is unlikely that this condition will persist indefinitely since the market has become somewhat saturated, and price slashing may be resorted to in an effort to move goods. The percentage of straight cash sales has followed a steady decline, and most purchases now are on a time basis with a small down payment and monthly instalments running up to one year.

Living standards in this country are low, particularly in the rural areas. The small well-to-do class, living in the more important centers of population, constitutes the backbone of the demand for such products as refrigerators and radios.

Distributors in Bogota invariably insist on being granted exclusive selling rights for the Departments of Cundinamarca and Boyaca. They are not very interested in other territory because of their inability to cover it.

Medellin is the distributing center for the Department of Antioquia, while sellers in Cali may or may not, depending upon their facilities, insist that they be given, as sales territory, the Departments of Valle, Tolima, and Cauca. Most radio and refrigerator manufacturers appoint distributors at Manizales for the Department of Caldas, and the Department of Narino is worked out of Pasto.

Import duties on electric refrigerators are six centavos a kilogram; on radio receiving sets, 10 centavos a kilogram; on combines, 50 centavos a kilogram. In addition to import duties, there is a canalization tax on foreign merchandise moving via inland waterways, and municipal imposts levied and collected on imported wares entering and sold within that municipality's confines.

Transportation charges from coastal points to inland cities are also fairly high.

Electric current characteristics throughout the country vary considerably, although all principal centers have 24-hour alternating current service. Voltage is the principal variant. In Bogota, it is 150 and 260; in Medellin, 110 and 220; in Manizales, 110, 120, and 220; in Cali, 120 and 208; in Pasto, 220 volts.

37 Kelvinator Water Coolers Installed in Cuban Post Office

HAVANA, Cuba—Kelvinator is represented in the Cuban general post office building (Secretaria de Comunicaciones) here with 37 water coolers, selected by a commission of experts appointed by the Postmaster General. The installations were made by the Arellano Company, S. A., Cuban distributor for Kelvinator, after bids had been submitted by four companies.

— FOREIGN TRADE NEWS —

Unfavorable Market Limits Sales in Cairo, Egypt

CAIRO, Egypt—Despite the unfavorable marketing conditions for the sale of electric refrigerators here (which include expensive electric current rates, voltage variations, and the cheapness of artificial ice) there were 147 units sold during 1935, and sales for 1936 showed an increase of approximately 10%, according to reports made by Don C. Bliss, acting U. S. commercial attache.

Current costs 5 cents per kwh., except between the hours of 5 p.m. and 11 p.m., when the price is raised to approximately 12 cents per kwh. Because of the variation in voltage in different neighborhoods, refrigerators made for this market should be equipped to operate on both 110 and 220 volts, or else transformers should be furnished, Mr. Bliss advised.

As a result of persistent advertising, several well-known American refrigerator manufacturers are beginning to touch the market in this country. To really do a large volume business in Egypt, manufacturers must first educate the people on the idea of mechanical refrigeration and its advantages, believe officials of the refrigeration companies selling in Egypt.

Room Coolers Installed for Roosevelt's Visit to Rio

RIO DE JANIERO, Brazil—General Electric, S. A., Carrier distributor in Brazil, installed two Model 50 D self-contained room coolers in the home of Sr. Carlos Guinle, for the use of President Franklin D. Roosevelt during his "good will" visit to the city.

Sir Rahimtoola

Sir Rahimtoola Chinoy, Kt., chairman of The Bombay Garage, Frigidaire distributor for Bombay, India, has recently been knighted by the British crown.

200 Room Hospital In Mexico City is Air Conditioned

MEXICO CITY, Mexico—What is thought to be the world's largest hospital air-conditioning installation has been made by Carrier Corp. in the 200-room Hospital of the National Railways (Hospital de Los Ferrocarriles Nacionales) here. The building is also the first completely air-conditioned hospital on record.

Two central station air-conditioning units were installed to service every space in the building occupied by patients and employes. This includes the operating rooms, private wards, and public reception rooms.

Another recent Carrier hospital installation was in the Loma Linda Sanitarium at Loma Linda, Calif. A central station system installation supplies approximately 25,000 c.f.m. of air for the building. The hospital has a capacity of 297 patients.

Rooms conditioned include the x-ray department, physical therapy, barber shops, beauty shop, west wing offices, large room in the east wing, the foyer, private offices, credit department and library, dining room on the first floor, dietitians' room, matron's room, solarium, and occupational therapy room.

Other hospitals air conditioned by Carrier include Skin and Cancer Hospital, Philadelphia; Walter Reid Hospital, Washington, D. C.; Moline Public Hospital, Moline, Ill.; Hospital Jesus, Rio de Janiero; Anglo-Iranian Oil Co.'s Hospital, Abadan, Persia; Lahore Maternity Hospital, Lahore, India.

Equipment for Making Frozen Sweets Sold by Carrier in Bangkok

BANGKOK, Siam—Frozen sweets—known in the United States as Popsicles or "a drink on a stick"—will soon be available to the children of Siam.

Sale of a complete plant for manufacturing these products was recently made by Carrier-Brunswick International to the firm of Yengai here.

The plant has a capacity of 12,000 sweets per day, with a storage room capable of holding two or three day's production. Equipment includes a No. 13 BD ammonia compressor, freezing tank, molds, and brine pump, and two evaporative condensers.

First Puerto Rico Restaurant Conditioned by Carrier

SAN JUAN, Puerto Rico—First restaurant air-conditioning system in Puerto Rico has been installed in the Aquarium Restaurant, one of San Juan's most popular eating places. Carrier equipment was used. Jose Gaya, managing partner of the Pugh, Abraham Co., which operates the restaurant, became convinced of the advantage of air conditioning for restaurants through observations made during business trips to the United States.

Super-Cold Installations Made for U. S. in Panama

PANAMA, Panama—Robert Gonzales Delgado, sales manager for Delvalle & Penso, local Super-Cold distributor, has made a number of sales to the U. S. Army post at Fort Clayton, Canal Zone.

Vactric Contracts For European Apex Rights

CLEVELAND—Apex Electrical Mfg. Co. has completed arrangements with Vactric, Ltd., British vacuum cleaner producer, for the manufacturing and marketing of its products in Europe, Great Britain, and the British dominions except Canada, according to C. G. Frantz, president.

A special company, Apex-Vactric, Ltd., has been formed to handle production and sale of the Apex line, Mr. Frantz said. The company is licensed to use the Apex patents and trademarks.

L. E. Levee, vice president and manager of the Apex's eastern territory, has gone to Europe to take care of the company's British interests.

Stock totaling 150,000 pounds sterling has been issued in England for financing operations of the new company, including construction of a special factory for production of the Apex line, Mr. Frantz announced.

Until the factory is completed and put into operation, appliances will be shipped from Cleveland for distribution by the new outlet.

Room Coolers Sold in Puerto Rico by Getting Prospects Hot

SAN JUAN, Puerto Rico—A. Martinez, manager of Martinez & Marquez, Carrier distributor in Puerto Rico, has sold a number of self-contained room coolers through use of a novel method of "advertising."

Mr. Martinez arranged the installation of his own office unit so that the duct was faced out toward the street, and the hot exhaust air brushes the casual pedestrians who pass. Nine out of 10 people, he says, instinctively walk into the office to inquire about the strange phenomena. A demonstration is then in order.

Kelvinator Protects Food In Presidential Palace

SAN SALVADOR, El Salvador—Food in the presidential palace of the Republic of El Salvador is protected with Kelvinator electric refrigeration sold to Gen. Alberto Valdez, chief of staff, by Don Luis Castro Lopez, sales manager of E. E. Huber & Co., Kelvinator distributor.

TRAINED MEN Furnished FREE!

Save time, trouble and money when you need men. Use the U.E.I. Free Placement Bureau. No charge to you or prospective employee. It is our contribution to the industry.

We have U. E. I. trained men available in all parts of the country. For 10 years our graduates have made good as shop mechanics, and as installation and service men in leading organizations. Next time you need a competent man, phone write, or wire the U. E. I. Free Placement Bureau.

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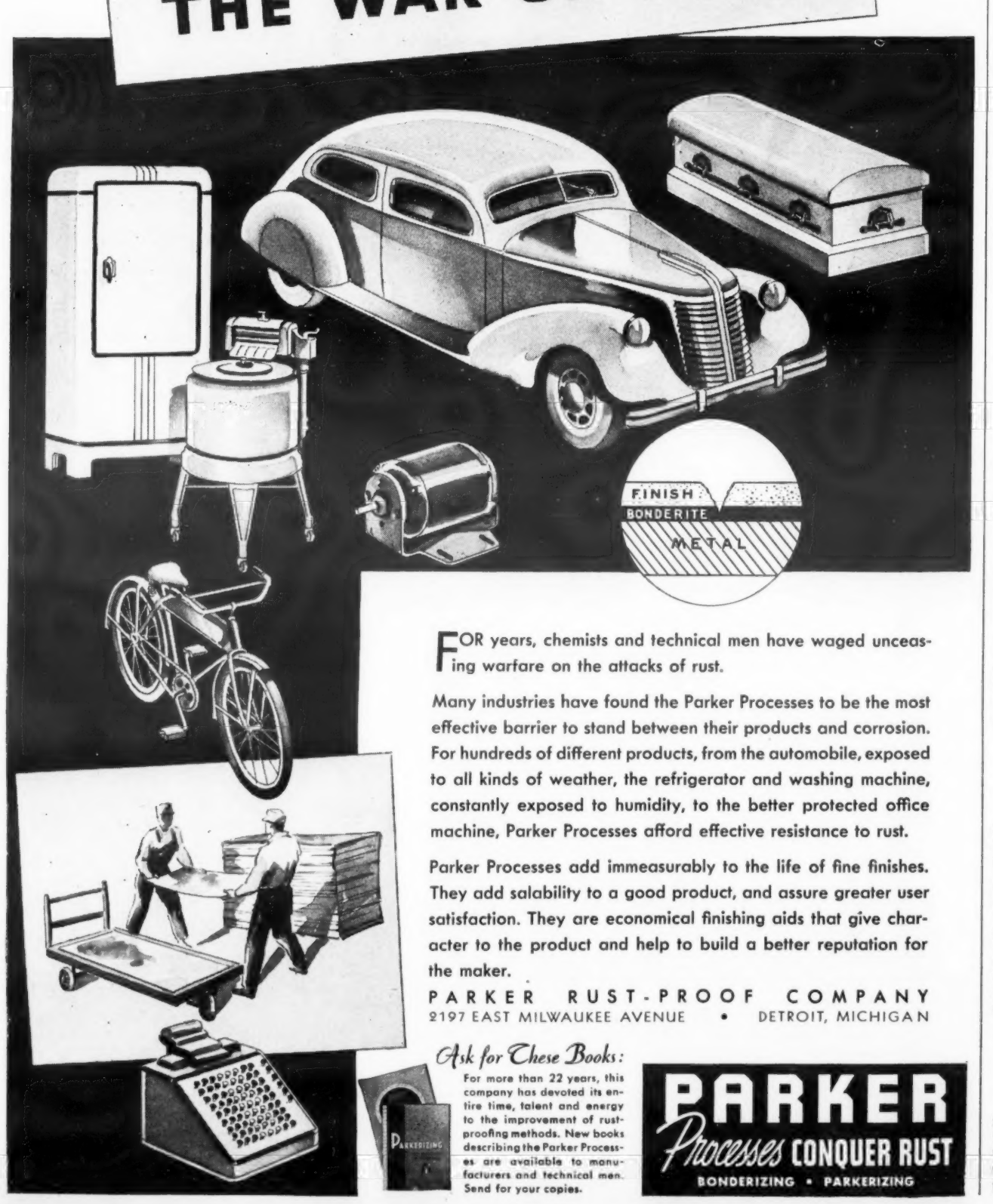
WINNING THE WAR ON RUST



FOR years, chemists and technical men have waged unceasing warfare on the attacks of rust.

Many industries have found the Parker Processes to be the most effective barrier to stand between their products and corrosion. For hundreds of different products, from the automobile, exposed to all kinds of weather, the refrigerator and washing machine, constantly exposed to humidity, to the better protected office machine, Parker Processes afford effective resistance to rust.

Parker Processes add immeasurably to the life of fine finishes. They add salability to a good product, and assure greater user satisfaction. They are economical finishing aids that give character to the product and help to build a better reputation for the maker.

PARKER RUST-PROOF COMPANY
2197 EAST MILWAUKEE AVENUE • DETROIT, MICHIGAN

Ask for These Books:

For more than 22 years, this company has devoted its entire time, talent and energy to the improvement of rust-proofing methods. New books describing the Parker Processes are available to manufacturers and technical men. Send for your copies.

PARKER *Processes* CONQUER RUST
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MODERNIZE YOUR REFRIGERATOR WITH SHELF-X SHELVING

● Shelf-X* is as modern as the newest refrigerator models. It does away with the tipping of dishes and the dropping of food. The attractive diamond design adds to the refrigerator's appearance. And in addition to its many other advantages Shelf-X is sanitary and easy to keep clean.

Use Shelf-X for air-conditioning units

Because the large open area of Shelf-X assures good air circulation, Shelf-X is as good for air-conditioning screening as it is for refrigerator shelving.

MAIL COUPON FOR FREE SAMPLE

UNITED STATES GYPSUM COMPANY
300 West Adams Street, Chicago, Illinois
Please send me a free sample of Shelf-X with complete details. ARN-2-24
Name.....
Title.....
Company.....
City.....State.....
*Registered Trade-Mark

MANUFACTURED BY
UNITED STATES GYPSUM COMPANY

Carrier Equipment Installed In Noxzema Plant

BALTIMORE—Among the major air-conditioning installations made since the beginning of 1937 by Air Conditioning, Inc., Baltimore Carrier distributor, is that in the Noxzema Chemical Co. plant at 3100 Falls Road here.

Minneapolis Contractors' Group Elects Officers

MINNEAPOLIS—The Minneapolis Association of Heating, Piping, and Air Conditioning Contractors held its annual business meeting recently, electing George J. Johnstone, president; F. W. Stiller, secretary; and Leon C. Hanson, treasurer.

New Zephyr-Air Units Designed to Eliminate 'Atmosfag' Condition

NEW YORK CITY—New "Zephyr Air" conditioners, introduced by the air-conditioning division of Savage Arms Corp., include four all-year conditioners cooling either by the circulation of cold water or by direct expansion with remote refrigeration unit; a "self-contained" all-year conditioner with the refrigeration unit housed inside the cabinet; and a portable room humidifier.

According to the manufacturer, "Zephyr Air" conditioners eliminate "atmosfag"; the condition of the air within the conditioned space is vitalized by the constant purifying, washing, circulating and warming or cooling action resulting from its use.

"Atmosfag" is defined as that vitiated feeling or subnormal condition resulting from the breathing of air which is not quite what it should be.

The "Zephyr 40" is a portable humidifier for winter use, featuring a cloth type air filter, and spray type air washing and humidification. A daily water-evaporating capacity of 6 to 12 gallons is claimed.

This unit may be placed above the radiator or hot air supply with which the room is heated, or may at other convenient locations, be placed, where exposed to the flow of warm air.

SELF-CONTAINED UNIT

The "Zephyr 60" is the self-contained model of the line. The refrigerating equipment with which this model is equipped consists of a vertical two-cylinder compressor featuring a water-cooled motor and a double-coil water-cooled condenser. An automatic condensing-water control valve and a high-pressure safety cutout are provided.

Air-conditioning elements furnished consist of the air spray with flooded scrubber plates for cleaning the air and for humidifying coil, the air-conditioning fan, and the heating coil if heating is desired.

Entirely separate and detachable compartments are provided for the actual refrigerating elements and for the air-conditioning elements.

Accessibility is obtained by the use of a removable panel which constitutes the entire front of the cabinet.

If desired, an outside air connection is furnished consisting of an intake which is installed beneath the window sash.

REMOTE ROOM CABINET

The "Zephyr 61" is the room conditioner for use with remote refrigerating equipment. It is identical with the air-conditioning unit section of the Zephyr 60; it may be installed for winter conditioning only, and afterward may be converted into an all-year self-contained unit merely by installing the refrigerating section adjacent at a future time.

Special features of the Zephyr all-year models described above are washing of the air supplied by them, the automatic shut-off valve which cuts off the water supply in case of stoppage of the drain, and the very low noise level that is claimed.

Key Specifications of 'Zephyr Air' Conditioners

	Zephyr Air Conditioner Only							Refrigerant Condensing Unit					
Model	Air Flow, C.f.m.	Max. Humidifying Capacity lb/hr.	Spray Water Consumption, Gal/hr.	Motor Hp.	Preheating B.t.u./hr.	Reheating B.t.u./hr.	Cooling B.t.u./hr.	Condensing Unit No.	Motor Hp.	Capacity, Tons	Width In.	Height In.	Depth In.
Zephyr 85	500	12	15	1/20	19,000	22,000	15,000	AW-1502	1½	1¼	38¼	30	16½
Zephyr 86	1,000	24	20	1/10	38,000	44,000	30,000	W-3003	3	2½	52¼	31	25
Zephyr 88	2,000	48	30	1/4	76,000	88,000	60,000	W-5003	5	5	52¼	31½	25

— AIR CONDITIONING NEWS —

Air Conditioner at $175 To Be Marketed by New Company

NEW YORK CITY—A new portable, self-contained air conditioner said to retail at $175.00 and featuring unusual compactness and light weight recently has been placed on the market by the Pleasantaire Corp. of this city.

Although this unit, which is called the "North Wind" by its manufacturer, contains all parts, including compressor, air-cooled condenser, circulating fans and direct expansion cooling and dehumidifying coil, the weight listed by the manufacturer is but 140 pounds. Space occupied is approximately 15 by 28 by 13 inches, so that the work of installation consists merely of setting the conditioner upon a convenient window sill, and plugging into any standard receptacle.

The unit is designed to be placed beneath the lower window sash, a sound deadening strip being provided against which the sash may be rested.

A single unit is claimed to suffice for small private offices, bedrooms, and smaller spaces, while larger rooms may be conditioned by placing units in more windows as required.

The unit is said to be especially suited to the needs of the hotel or hospital, as it may easily be moved from place to place by an attendant and plugged in to meet the wishes of the guest or patient, thus obviating the necessity of an expensive installation of permanent ducts or piping.

The compressor is of conventional design and manufacture, driven by a ⅓-hp. capacitor-type motor. The manufacturer states that the North Wind conditioner will deliver 300 c.f.m. of cooled dehumidified air.

Four Men Added to Sales Staff at Peerless

CHICAGO—Carl E. Johnson, L. J. Doing, R. C. Ryan, and C. A. Hulsman have been added to the sales force of Peerless of America, Inc., reports M. W. Knight, general sales manager.

Mr. Johnson, formerly with Copeland here, will cover Minnesota, Wisconsin, North Dakota, and South Dakota from his headquarters at Minneapolis. Mr. Doing, formerly with Servel, Inc., and later with Bernard Gleoklner Co. of Pittsburgh, will cover the western half of Pennsylvania and all West Virginia, maintaining headquarters in Pittsburgh.

Mr. Ryan and Mr. Hulsman came to Peerless from the Larkin Refrigeration Corp. The former will cover the south central states from Georgia to Texas, and will headquarter in Atlanta. Mr. Hulsman will work out of the central office, serving Chicago.

Trane Dedicates Second New Addition

LA CROSSE, Wis.—Formal dedication of the addition to the No. 2 plant of The Trane Co., necessitated to meet production demands for air-conditioning units, was celebrated here Feb. 13 by 1,500 people—employes of the company, their wives, and invited guests.

The celebration also marked the fiftieth anniversary of the founding of the company by the late James A. Trane, and the twenty-fifth anniversary of the firm's entry into the heating-equipment field. It was held in the new 281x121-foot addition.

Reuben N. Trane, president, briefly reviewed the progress made in recent months.

"Ten months ago, almost to the day, we opened a new addition one-half the size of this one we are dedicating today," he said.

"January, usually a poor month, brought us more orders than in any other month in history. January had an increase of 80% over last year. Our 1936 business gained 70% over 1935. In 1937, we expect a 50% gain over 1936."

Moline Buys Interest in Syncromatic Corp.

MILWAUKEE—A half-interest in the Syncromatic Air Conditioning Corp. has been acquired by the Moline Mfg. Co. of Racine, it was announced here last week.

Moline is to act as national distributor of air-conditioning products made by the Syncromatic firm, and eventually may take over manufacturing operations, C. R. McCallum, Syncromatic president, said.

The plan uniting the two companies contemplates no change in the research and development work which Syncromatic has been carrying on for five years. The firm manufactures complete air-conditioning equipment, and has made some 200 installations in Milwaukee alone. A direct fired, oil burning, air-conditioning furnace has been developed, and is to be marketed through Moline channels.

New officers of the air-conditioning firm including some officials of Moline, are: Mr. McCallum, president; Arthur G. Dixon, Racine, vice president; A. F. Thompson, Racine, secretary; R. C. Jepertinger, Milwaukee, treasurer; and H. M. Stillman, Milwaukee, assistant treasurer and assistant secretary.

Directors are M. S. Potter, Racine; W. C. Winkel, Racine; C. T. Perkins, Racine; Mr. McCallum; Carl B. Dix, Milwaukee, and Mr. Jepertinger.

When Summer Comes

★ WILL YOU be far behind in home cooling profits?

Sell Summer Comfort with Breez-Air Fans

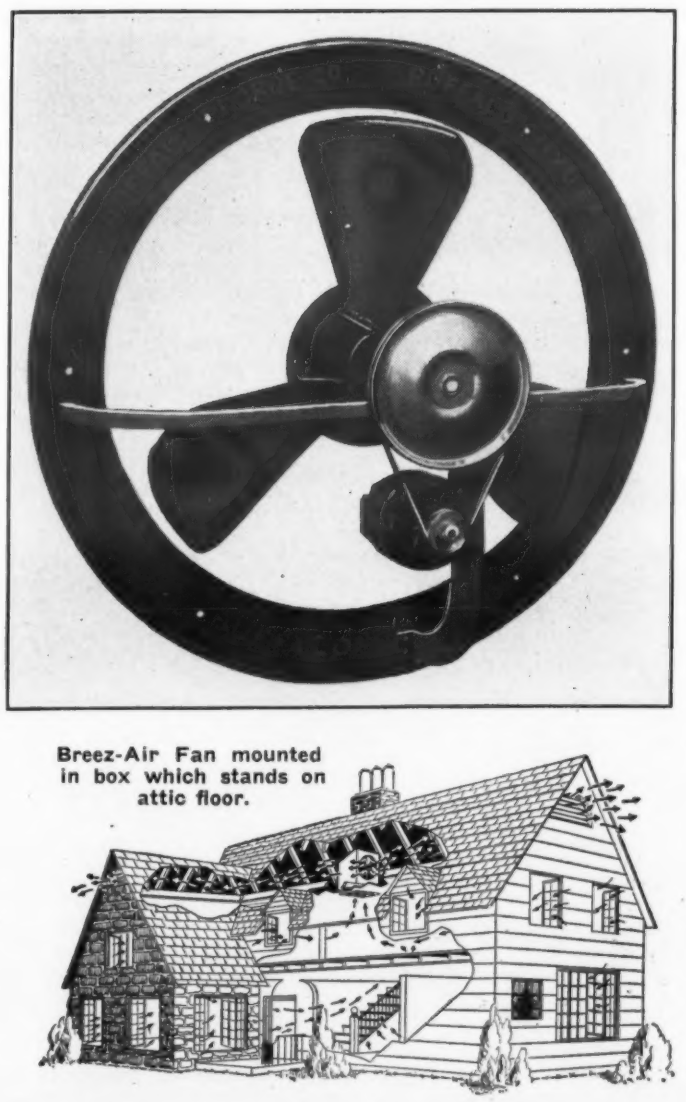
★ No Sir! - - Not if you can qualify as a Breez-Air Distributor or Dealer! "Breez-Air" Fans for attic cooling are an excellent proposition for organizations set-up for house-to-house selling. They are easy to install, efficient, very QUIET. They are competitively priced.

Good Territory Still Open

Considerable territory is available for distributors who can carry a stock and for dealers with suitable selling organizations. Write or wire for details.

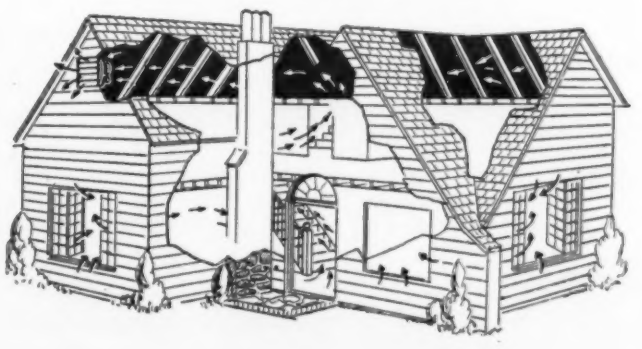
BUFFALO FORGE COMPANY
497 Broadway Buffalo, N. Y.
Branch Engineering Offices in Principal Cities

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.



Breez-Air Fan mounted in box which stands on attic floor.

Breez-Air mounted in attic side wall with ventilating louvres



AROUND THE WORLD WITH GEORGE F. TAUBENECK

"You can't beat the Dutch," cried the early English colonists along the Atlantic seaboard, when they did business with the still earlier Dutch settlers of Nieuw Amsterdam (now New York). And sturdy Dutch stock provided the ancestry for some of our most aristocratic New York families, from the Vanderbilts to the Roosevelts.

The same respect for the qualities of the Dutch people holds true in Michigan, in the western part of which a colony of Dutch immigrants settled less than a century ago, and has already given Michigan some of its most famous names, from Oosterbaan to Vandenberg.

What the thrifty, rugged Dutch people are like on their unique home grounds is told in this instalment of the editor's travelog, which is based on his seven months' trip around the world in search of information on present and potential markets for air-conditioning and refrigeration equipment.

A Good Smoke

What I liked best about Holland was the cigars.

Impressions of Dutch-controlled Java had prepared me for the neatness and order, economy and efficiency of Dutch management. Yes, and for the canals and bicycles.

In-transit drives through the old Dutch colony in Western Michigan had forearmed me for the tulips, the toy brick architecture, and the solid, substantial character of the citizens.

But nobody had told me about the cigars.

They range in price from a penny to 50 cents; but for four or six cents you can get a cigar which will give you more aromatic enjoyment than any smoke I have ever been able to obtain in these United States of America.

In addition to the flavor, the fragrance, the soul-satisfying state of all's-right-with-the-worldness bestowed on the smoker of a genuine Dutch cigar, there is a most notable absence of that dopey after-effect. You can smoke a dozen of them chain fashion without going into an arm-chair decline.

No wonder I thought Holland was just about the most pleasant country of them all.

* * *

Coveys of Bicycles

Holland, they say, is a land of 20 million cows, eight million people, and three million bicycles. But not even physical well-being induced by the extravagantly good cigars can reconcile the foreign visitor to the fact that pedestrianism is vastly more complicated on the bicycle-infested Dutch streets than it is in Detroit, where one has to dodge only automobiles in crossing the street.

Bicycles are like locusts over there; they fly down in swarms, darting hither and yon as if on wings; and again, like locusts, there isn't much you can do about them.

Universal flatness of surface makes pedaling easy; short distances make cycling feasible for any sort of trip. And custom, fashion, and habit combine to make the bicycle the national means of locomotion.

Romance, breezy and open, is facilitated on two wheels, rather than four. Couples going out on a "date" either canoe on a canal (how'd that be for a popular song title: "Come Canoe on the Canal"?) or go for a bike ride. When engaged on the latter, they each steer with one hand only, so that they can interlock the other two.

Sometimes it's the boy only who steers with one hand. In that case, he clamps the free hand onto the wrist, forearm, or hand of the girl by whose side he is riding. This seems to be an invariable custom, ritualistic and solemn.

Families go bike riding together on Sundays, with babies cradled comfortably in a basket braced to the rear guards, and small children straddling special seats just behind the handlebars.

Women do their marketing on bicycles, or ride over to visit with neighbors. Men go to and from work on them; groceries and other light freight are delivered on three-wheeled "bike trucks" propelled by leg power. Age makes no difference. Youngsters just past the crawling stage are given small bikes so they can dodge the fast wheeling of white-haired septuagenarians on the crowded highways.

When one of the numerous drawbridges rears up, or a traffic policeman at an especially busy intersection stays traffic with an upraised palm, the bicycles line up 15 abreast and 20 to 30 deep in almost no time at all. And they have the right-of-way. Occasional automobiles have to progress as best they can.

* * *

Canals & Windmills

It's easy to understand why the Dutch are a seafaring race. Generally a nation produces sailors only along its seacoast; but in Holland the children are brought up in boats no matter how far into the interior they may happen to live.

Canals are everywhere, in city and village, and honeycombing the countryside. At first one is startled to see a sailboat calmly progressing through the middle of a field of hay—but soon one learns that it's simply traversing a hidden canal.

When families or romancing couples aren't out for a joy ride on their bicycles, they go sailing. Saturday afternoon especially is a great time for sailing, or canoeing in the little, folding kayak-like boats so popular with the youngsters.

There are wide canals which bear moderately heavy shipping. There are small canals which aren't good for much but canoeing. And then there are those which are purely drainage ditches.

In the system of dikes and polders which makes The Netherlands a country, the canals have a very definite part. They are safety valves, carrying water from places it isn't wanted to rivers which can accommodate it. In this system, water is often made to flow uphill. Formerly that was done by windmills; but now, electrically.

I was immensely interested one Sunday on the beach at Schevenignen to note a pastime delightedly indulged in by almost all the small children bathing there. When the tide began to roll in, they wildly went to work building miniature dikes and canals out of the sand and pebbles, in a vain attempt to control the influx of water!

Still another indication of the influence that the sea has on Dutch life may be noted in the churches, many of which appear to have been erected by former shipbuiders. Inside they seem like the interior of a ship's hull. Many of them have a definite list, leaning into the wind. And often they are quite surrounded by water.

* * *

Toy World

Possibly because of the difficulty with which the Dutch wrested land from the sea, they place a premium upon space. Everything seems compressed, compact. It is as if one is looking at a world in miniature, with toy models built to scale.

Take the houses. They're tiny, they're made of small red bricks, and they have no space for fol-de-rols. Only thing large about them is the windows.

Towns are compact, too, like jewels in a setting. They don't just peter out into the country, like American cities; the line of cleavage between city and farmland is sharp, definite.

All lines seem sharp, and distinct, just as the colors are unusually bright in Holland. This, combined with the smallness and the scrupulous cleanliness, heightens the impression that here is a *model* country.

Roads and highways are straight and level, and are further outlined by rows of protecting trees, usually willows. Alongside every highway is a bicycle path, and often a canal.

Front & Back

What the well-dressed little Dutch girl wears may be observed from this front-and-back view of the ornately embroidered costumes seen on the Isle of Marken, Dutch tourist bait.

Free Ad for Rinso

The Dutch are famed as the cleanest, best-scrubbed people on earth. Apparently American soap products help them maintain this reputation. When the editor shot this picture of an Old Dutch Lady and her three grandchildren, he had no idea that the enlargement would show a package of Rinso in her hand.

Houses are not shielded from streets and roadways by fences, hedges, or landscaping, but stand out proudly and sharply, strong in the knowledge of their meticulous, neat appearance.

And, to complete the picture of geometrical outlines, all the polder farms are laid out in exact squares and rectangles.

Even though The Netherlands may be several hundred years old, somebody back in those days must have had advanced notions of civic planning. Everything is neat, exact, and orderly; and sharp distinctions are the rule.

This same passion for efficiency and zeal for standardization is manifest in the daily life of the people and the fiscal career of their government, as well as in their physical surroundings.

* * *

Professionally Quaint

Unable to offer the tourist any striking scenery, like Switzerland, Austria, Italy, and Spain, the government of Holland has contrived to lure the sightseer by subsidizing antiquity, something in the manner of Henry Ford and his collection of living early Americana in Greenfield Village.

Volendam and the neighboring Isle of Marken are subsidized just to remain tourist bait. There the people wear the oldtime Dutch costumes, the baggy pants, round seamen's caps, dark jersies, and wooden shoes. (Those wooden shoes, by the way, are really useful, being waterproof, and serving as webbed feet for marshlanders).

The women and girls wear the equally well-known tight bodices, white, winged, peaked hats, and full skirts, under which hide numerous petticoats; and even the village belle wears wooden shoes.

A hardy group of fishermen whose net profits went into eclipse, the people of Volendam not only are subsidized to cling to their old-fashioned way of living and dressing, but add to their livelihood by acting as guides and caterers to the flocks of tourists.

People of the Isle of Marken, that other mecca for artists, seem to be of a coarser, more backward nature than the Volendammers. The costumes are gaudier, less uniform, not so neat, and more unreal. Houses are much less ornate and are not very well looked after. The interiors are sometimes bizarre.

Although the island is merely a few acres in extent, it contains seven hamlets. The streets are no more than raised brick paths or hardened dyke-tops.

For several generations there has existed a religious feud between Marken and Volendam, and the inhabitants of the island, being prim, prudish Protestants, are emphatically intolerant of any suggestion of intermarriage with the Roman Catholic Volendammers.

Up to the age of six years, the boys and girls of Marken are dressed exactly alike. Both sexes wear their hair long and flowing, with sharply cut bangs. The only mark of distinction is a small, round patch sewn on the crown of the boys' hats.

Marken's main industry is that of fishing, for the island lies in the Zuider Zee just a few miles off the coast from Volendam. What lies in store for Marken when it becomes part of the southwest polder is, right now, a highly controversial subject.

Alkmaar, in North Holland, is visited by the curious because of its cheese-market. On market day, which is Friday, the Weigh-House and its Square are scenes of bustle and what might be termed orderly confusion.

Very early in the morning the farmers from outlying districts arrive in their quaint wagons filled with bright, round, yellow cheeses and set up shop.

About five a.m. the marketing gets under way, and from then until the bells in the Weigh-House tower ring out to close the day's proceedings around noon the Square is filled with a babble of voices, shuffling, white-clad attendants carrying cheese-laden

(*Concluded on Page 14, Column 1*)

Solidity and Respectability Keywords to Habits and Customs in The Netherlands

(1) Diesel trucks and pedal-power carts carry produce quickly along the narrow roads which parallel the canals. Slower moving freight is directed down the latter. (2) Hack drivers in The Hague maintain a gravity and composure in keeping with their top-hatted uniforms. (3) Monday is wash day in The Netherlands, too; and cleanliness is next to godliness. (4) In a hurry to get home and see the wife and kiddies, this Dutch sailor makes a quick leap from boat to dock.

'Neither Flood Nor Fire - -'

To maintain deliveries to distributors during the recent flood, General Household Utilities Co. floated a supply of its No. 755 radio cabinets up from the southern factory at Owensboro, Ky., to Evansville by barge. The cabinets were then trucked into the company's Marion, Ind., factory, from which shipments to distributors were made.

Kitchen-Planning Authorities Discuss Methods of Reducing Kitchen Costs

MANSFIELD—Twenty-five kitchen planning authorities, among whom were editors of leading women's and home magazines, discussed methods by which planned kitchen costs might be reduced to fit the purse of the average income housewife, at the third annual Westinghouse Kitchen Clinic held here Feb. 8 and 9.

Round table discussion centered on reducing costs by a greater standardization and simplification of design, because clinic members agreed that the greatest need for the planned kitchen exists in the average house, where there are no servants.

I. W. Clark, Westinghouse kitchen planning manager, who headed the clinic, cited as proof that a program to reduce costs was needed, the fact that during the past year some 250,000 American housewives had written to various interested publications and manufacturers for information on ways of lightening their household tasks, and beautifying their kitchens, through planning.

In addition to problems pertaining to planned kitchens, the clinic discussion was centered also on establishing standard requirements and adopting a definite basis for grouping equipment to form a "planned laundry."

The laundry, when divided into units for treatment, the clinic agreed, should be considered as having four natural parts: the laundry counter for sorting and sprinkling clothes; the washing center, consisting of laundry trays and washer; the drying center; and the ironing center.

A. E. Allen, Westinghouse vice president in charge of merchandise, welcomed the clinic group. Reese Mills, manager of the range and water heater department, outlined for them the work accomplished at the two previous Westinghouse kitchen clinic meetings.

Those who attended were: Julia Bourne, American Home; Christine Frederick, American Weekly; Helen Campbell, Chatalaine; Ellen Pennel, Country Home; Katherine Fisher, Good Housekeeping; Grace Pennock, Ladies' Home Journal; Mary Davis Gillies and Kathleen Robertson, McCall's; Esther Kimmer, Pictorial Review; Ada Bessie Swann, Woman's Home Companion.

Gertrude Smith, Woman's Home Companion; Edna Van Horn, Better Homes & Gardens; Helen Ridley, Good Housekeeping; Ida Migliario, Household Magazine; Ella Cushman, Cornell University; L. E. Moffatt, Electrical Merchandising; Stanley Dennis, Electrical Dealer; and Katherine Caldwell, Canadian Home Journal.

Bandoli Decries 'Bogey Of Saturation,' Citing Potential Sales Market

NEW ORLEANS — Decrying the "bogey of saturation" in the electric refrigeration industry, Marvin S. Bandoli, domestic sales manager of the Kelvinator Division of Nash-Kelvinator Corp., pointed out in an address before public utilities executives and electric appliance dealers and distributors that only 9,000,000 of the 21,887,000 homes wired for electricity are actually equipped with electric refrigeration.

"When we reflect that there are 26,000,000 automobiles registered in the United States, as compared with 9,000,000 refrigerators, it is apparent that there still exists an imposing list of prospects for refrigerator sales," the Kelvinator executive declared.

"The great field for expansion lies in the homes of the more modest income groups."

No real effort, he said, has ever been made by the refrigeration industry as a whole to stimulate replacement sales.

Floods Fail to Dim Dealer Optimism, Spooner Reports

BRIDGEPORT, Conn.—After an 8,000-mile trip through territories both above and below water, D. C. Spooner, Jr., manager of General Electric's home appliance sales division, reports above-average dealer optimism in both wet and dry areas. Mr. Spooner covered marketing centers responsible for 80% of G-E's appliance business.

Since Jan. 1 and in spite of flood conditions, dealer coverage has been increased by distributors in Pittsburgh on some lines by as much as 25%, Mr. Spooner said.

Canadian Frigidaire 1936 Sales Up 62%

TORONTO, Ont., Canada—Frigidaire increased its 1936 Canadian business by 62% over sales of the previous year, and expects an even greater increase for this year, W. C. Cannon, sales manager for Canada, told 300 dealers holding their annual sales convention here Feb. 12.

Those taking part in the convention, at which the 1937 line was shown, included: L. C. Shannon, of the Dayton executive staff; E. B. Wilkins, general manager for Canada; W. C. Kennedy, commercial sales manager; W. Garlick, Canadian sales promotion manager; R. S. Hager, advertising manager, and W. R. Trimble, of the Baker Advertising Agency, Frigidaire Canadian representative.

Connelly Holds Sales Meeting At Portland Offices

PORTLAND, Ore.—To present 1937 selling and advertising plans to its wholesale salesmen and managers of the company's Seattle, Portland, and Spokane branches, the F. B. Connelly Co., distributor of Grunow radios and refrigerators, recently held a one-day general sales meeting at its central offices here.

Kenneth A. Connelly, company vice president, Walter McCurdy, general sales manager, and W. E. Darden, western district manager of General Household Utilities Co., were principal speakers on the day's sales-planning program.

Frank T. Parker, Portland branch manager, announced that the company would hold dealer meetings at key cities in its territory during the next few weeks.

Wholesale salesmen representing Connelly in Oregon, Washington, Idaho, and western Montana, attended the meeting.

Glacier Has Nothing on Freezing Capacity of U. S. Refrigerators

NEW YORK CITY—That Alaskan glacier that threatens to wipe out a highway and a roadhouse in the Delta River Valley hasn't much on what the housewives of America could produce in their own kitchens during the course a year, according to figures compiled by The Temperature Research Foundation of Nash-Kelvinator Corp.

All told, the more than 9,000,000 electric refrigerators in use in the United States could produce 304,165,450 cu. ft. of ice in a year, it was estimated. This would be sufficient for a glacier more than 2,000 feet wide, 3,000 feet long and 50 feet high. The Valley ice mass reaches a maximum thickness of 3,000 feet.

The Foundation figures were based on five daily freezings of two trays of 16 cubes each.

The ice cubes produced domestically in the United States each year would pave a highway one inch thick and more than 30 feet wide around the equator if it wouldn't melt before the contractor finished the job.

Kittle Heads Refrigeration Division for Pearson Co.

INDIANAPOLIS—Clarence L. Kittle has been appointed manager of the refrigeration department of the Pearson Co., Inc., Kelvinator and Electrolux distributor, Robert E. Sloan, general manager, announced last week. He succeeds S. V. Abramson, who has accepted a position in Milwaukee .

In taking over his new duties, Mr. Kittle, who has been assistant manager in the department for several years, announced the appointment of Robert N. Moore and R. B. Klein as supervisors.

HEAVY DUTY CONDENSING UNITS FOR BEVERAGE and WATER COOLING

ONE SIXTH	ONE FIFTH	ONE FOURTH	ONE THIRD	HORSEPOWER

Complete Range . . . . .

UNIVERSAL COOLER condensing units fill every need, from 1/6 to 15 H.P. . . . For beverage and water cooling our heavy duty Commercial type units are most suitable — they come in 1/6, 1/5, 1/4 and 1/3 H. P. sizes. These particular models occupy little space; are fully powered, slow speed, long-life units — they fully justify the name "World's Standard," because the leading fixture manufacturers use UNIVERSAL COOLER condensing units.

Wire or write now for full information on how these famous condensing units will better serve you and enable you to deliver to your customer a compact and well built unit.

FEATURE-FULL

Consider these outstanding features — they indicate some of the reasons why you also should equip your fixtures with a UNIVERSAL COOLER product.

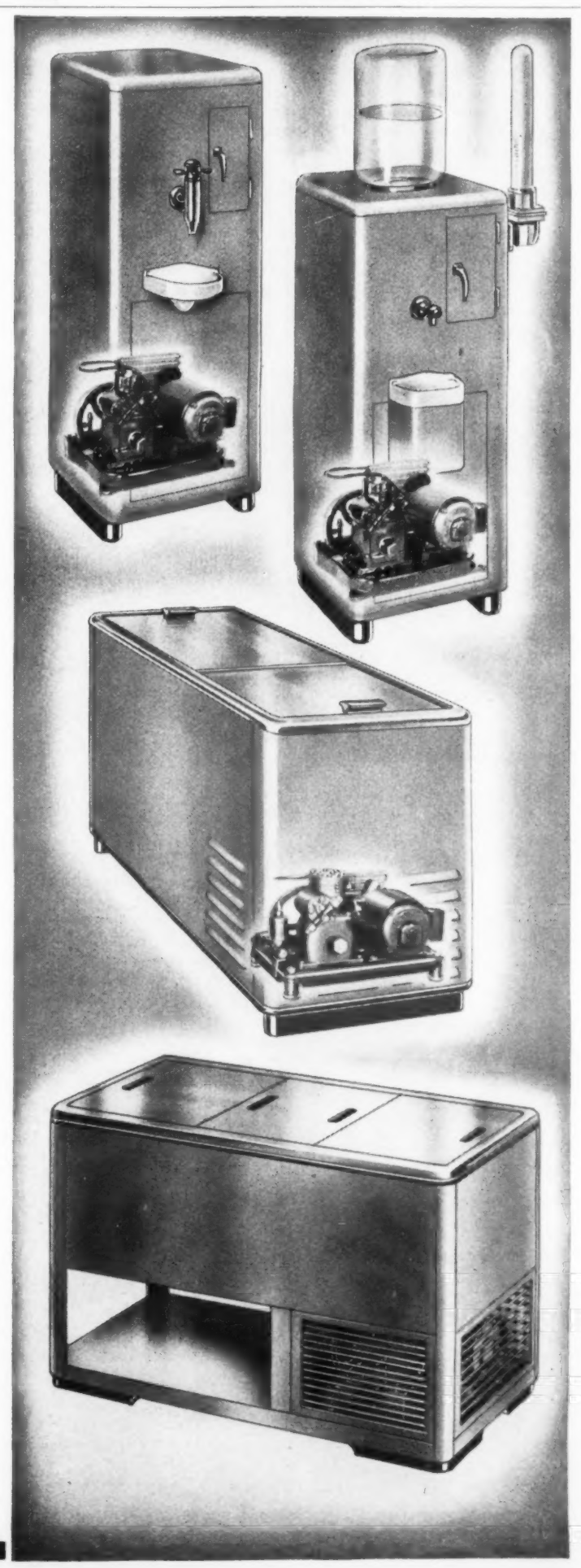
1. Outside seal
2. Metal gaskets
3. Bronze connecting rods —diamond bored
4. Hardened and ground cams
5. Piston ring type — cross lapped
6. Cog belt — Dayton
7. Greater displacement — 1½" bore by 1⅜" stroke
8. Oil separating suction chamber

UNITS BUILT SINCE 1922 FOR ALL SPECIFIC NEEDS — INCLUDING Air Conditioning and Beverage & Water Cooling

UNIVERSAL COOLER

DETROIT, MICHIGAN

Or in Canada—Universal Cooler Co. of Canada, Ltd., Brantford, Ont.



BUILT RIGHT from the INSIDE OUT

Each part of an A-P Expansion Valve is designed and built to produce a perfectly working unit. All working parts are easily removed for inspection and cleaning.

Automatic Products Company
2450 North 32nd St., Milwaukee, Wis.

AROUND THE WORLD WITH GEORGE F. TAUBENECK

(*Concluded from Page 12, Column 5*)

trays to and from the Weigh-House, insistent sellers, and obdurate buyers.

Then, when the bells chime, the air is filled with cheeses flying from the pyramids to carts and to boats waiting in the canal, the din of the battle dies away, the farmers trundle away their drays, the men in white disperse, and the square is empty and silent until another Friday.

On innumerable such scenes has the Weigh-House looked down since its completion in 1599, and nothing seems to change.

* * *

Robust Art - - and Women

For some unassigned reason, The Netherlands has produced a remarkable group of painters, the works of which, on exhibition at places like the notable Rijks Museum at Amsterdam, are a further attraction for foreign visitors.

Vincent Van Gogh is the most currently popular example. But in The Netherlands, he is merely a minor prophet. There are Rembrandt, Van der Helst, Van der Velde, Maes, Van Delft, Steen, Cuyp, Franz Hals, and the noble Rubens.

Passionately Dutch, these painters present almost photographically a progressive record of life in the lowlands through the crowding decades. And in the art of no other nation does one find such sturdy, unbending character.

Robust is the art, robust are the women.

Buxom to an extreme, sturdy and athletic, they don't go in for diaphanous femininity. Rather, they attract their mates by being "good guys." They work hard, ride bicycles swiftly, row, swim, engage with boys in all manner of sports and good fellowship.

Dress is not a fetish with them, nor is make-up. One seldom sees a pretty face—at least, one which would be adjudged pretty by a modern eye conditioned to the conventionalized masks which girls achieve nowadays through cosmetics and sculpturesque hairdressing.

* * *

Americanization

In many European countries one hears complaints about the "corruption" of national life by the introduction of luxuries from the United States, resulting in a deplored "Americanization" of their beloved culture and customs.

Not so, in The Netherlands.

Automobiles are few, and come as often from Germany as from America. Those who do own them are still in the duster-goggles-helmet stage; an automobile ride to them is an event about which they may be inclined to feel solemn and important.

American films have conquered Holland, just as they have the rest of the world. The talking is in English, but Dutch subtitles are superimposed along the bottom of the film. American jazz records, however, are not nearly so popular there as elsewhere in Europe.

French is the second language of the linguistic Dutch, followed by German and then English. American slang doesn't seem to have penetrated through the dikes.

Although the languages of the Dutch and the Germans appear similar in written form, they have widely varying pronunciations and spellings. Many Dutch words are spelled exactly as some English words, but here, too, they differ entirely in meaning.

For instance, the Dutch word *baker* might readily be taken to be English, whereas it really means "nurse."

The present-day Hell Gate in New York City is a name surviving—with totally different meaning—from the old Dutch Helle Gat, meaning "beautiful pass or outlet."

To an American, many Dutch names are familiar, and he would readily recognize them should he chance to come across them in The Netherlands. Perhaps the best-known example is the surname Roosevelt. It is a common Dutch name.

Mention the word "bowery" to a New Yorker, and he conjures up a mental picture of a squalid section of downtown Manhattan that tattooed its notoriety into American memory back in the late 1800's. The word is derived from the Dutch *bouwerij*, meaning a peasant's dwelling.

The Dutch language is classed by Webster as belonging to the Low group of the west branch of the Germanic subfamily of the Western, or Centum, Division of the Indo-European Languages.

In the same category is included old Saxon, old low Frankish, low German (Plattdeutsch), Flemish, Frisian, Anglo-Saxon, Middle English, and the Scottish dialect of the English language.

* * *

Trade and Commerce

Because of external pressure, The Netherlands, one of the last strongholds of free trade, has been forced to establish protective tariffs in order to guard Dutch markets from too much foreign invasion. Some of the boomerang effects of the tariffs were discussed earlier.

Dutch trade with neighboring European countries such as Germany, Belgium, England, and France has nearly always had an adverse balance.

As other countries have built up tariff walls, Dutch exports have fallen off. Since The Netherlands has resorted at last to the tariff, Dutch imports may also dwindle so as to balance export.

Ores, grain, tropical foodstuffs, condiments, and oils form the bulk of Holland's imports, much of them coming from the East Indies.

The principal exports are such agricultural products as exceed home consumption: dairy produce, livestock and fresh meat, fish and cured meats, margarine, cheese, artificial silk, cotton goods, electrical apparatus, and chemical products. Phillips radios and light bulbs go all over the world.

* * *

Finance

Amsterdam is the financial center of The Netherlands. In that city are established the Royal Post Office Savings Bank, the stock exchange, the main offices of The Netherlands Bank, and the Amsterdam Bank.

The state mint is in Utrecht.

The unit of Dutch money is the gulden, usually referred to as the guilder or florin. It is a silver coin with a present exchange value of approximately 54c. Each guilder equals 100 Dutch cents.

Other silver coins are the dubbeltje, the kwartje, and the Ryksdalder, worth 10 cents (Dutch), 25 cents (also Dutch), and two and a half guilders, i.e. gulden, respectively.

The Dutch cent is a copper coin, as are the half-cent and the two-and-a-half-cent pieces. The five-cent piece is a nickel coin having a value equal to that of approximately two and one half American cents. The only gold coin in circulation in The Netherlands is the 10-guilders piece.

Paper money is made up of notes ranging in value from two and a half guilders to 1,000 guilders. They are the two-and-a-half, 10, 20, 25, 40, 60, 100, 200, 300, and the 1,000-guilder notes.

When the American dollar was devalued the gulden went up from 40 to 70 cents American money—when the Netherlands finally went off the gold standard, the price of the gulden fell to about 54 cents in U.S. money.

* * *

Transportation

Most Dutch towns and villages are linked by bus routes, and those which aren't usually are accessible to the outside world via some railroad.

The State owns the greater part of the railroads in The Netherlands, but permits them to be operated by private companies. There are some lines both owned and operated by the latter.

Somewhat less expensive than the railroads, but slower, are the steamboats that chug along the main canals and rivers, and across the larger lakes and inland bays.

The trains of The Netherlands are light and short, and the carriages remind one of an old-fashioned street car, and are used mostly by peasants and villagers on the short trips to and from nearby towns.

KLM Flights

First air transport company to function in Europe was the Royal Dutch Airlines, known also as the KLM, which in 1920 had established regular scheduled flights across the English Channel to London. It is now one of the finest commercial lines in the world.

Albert Plesman, an officer in the Dutch army air service, is the man responsible for the creation of the KLM. In 1919, he organized an exhibition of planes at Amsterdam in an attempt to arouse the interest of the Dutch in the possibilities of commercial flying.

Of the approximately half million visitors to the show, many went aloft on sightseeing trips, and with this encouragement Plesman went ahead.

After the London flights had been established, all the neighboring European capitals were linked by air with The Netherlands before the year 1924 had ended. It was in that year that KLM began pioneering flights to the Dutch colony of Java, over 9,000 miles away.

Because of the difficulties encountered when permission to cross the 18 countries lying between Amsterdam and Batavia was sought, the project was tied up for several years.

Finally, in 1930, the first scheduled flights were made. Subsequent competition with Air France, the biggest French commercial air line, and with Imperial Airways of Britain led to the purchase by KLM of American-made Douglas air liners. With these they obtained extra speed and comfort and, therefore, more cargoes and passengers.

At present, the regular flight from Amsterdam to Batavia, Java, takes five and half days. When sending my copy back to Detroit from Singapore, Calcutta, and Cairo, I always air mailed it via KLM—it was costlier but faster than the British ships would carry it.

Also I took a KLM plane (a Douglas) from Amsterdam to Copenhagen, and it was one of the most comfortable air rides I've ever enjoyed.

* * *

Industry

Leading manufacturing establishments of The Netherlands are the shipyards, breweries, distilleries, sugar refineries, vinegar factories, and salt works. Other products made by the Dutch include textiles, carpets, leather goods, paper, confections, pottery, gold and silver ware, furniture, metal ware, skates, musical and scientific instruments, radios, electric lamps, and—ice boxes.

There are also flour mills, bakeries, and chemical works. The latter produce mainly sulphuric acid and its by-products, saltpetre and hydrochloric acid, and iron and copper sulphates for use in making inks, dyes, and disinfectants.

From the coal mined in the province of Limburg is obtained coal gas, coke, coal tar, tar oils, pitch, and ingredients used in dyes and antiseptics.

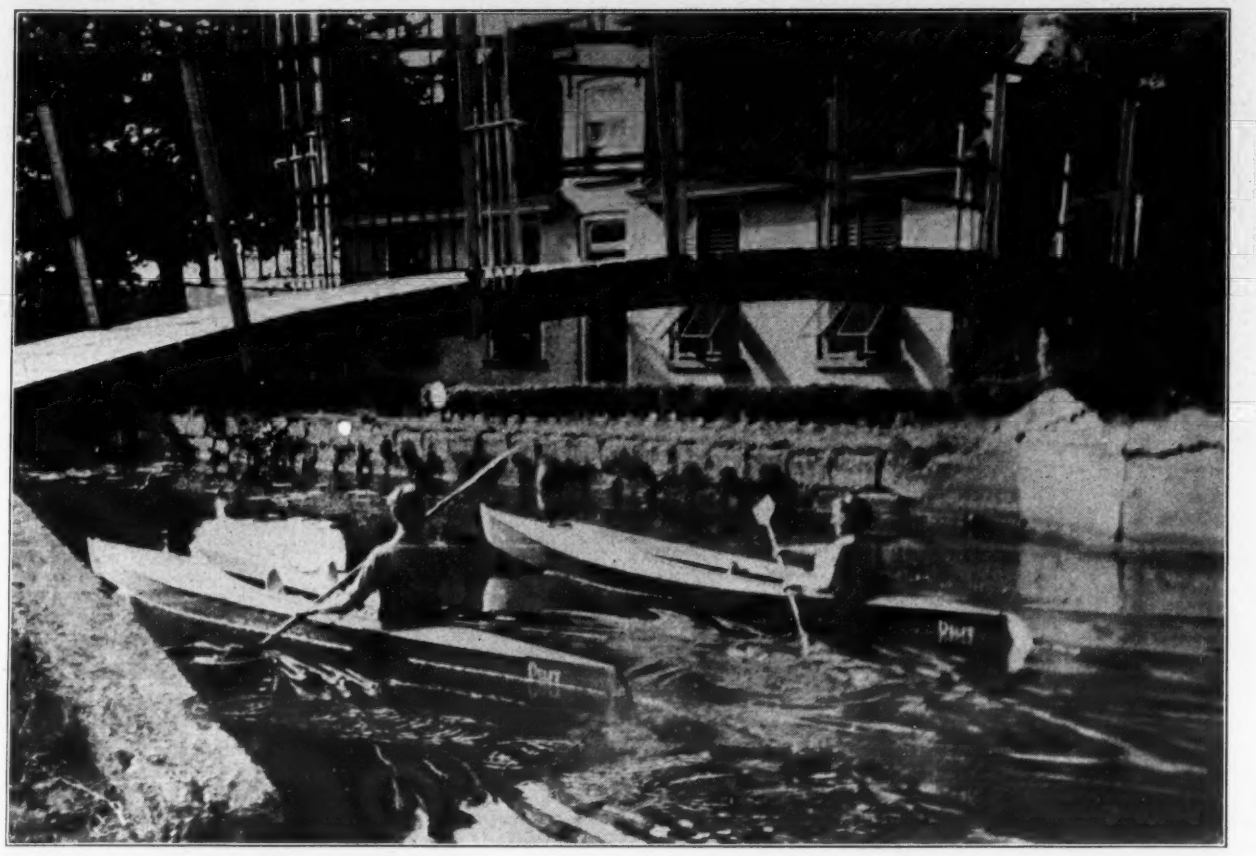
Candles, oleomargarine, lubricants, soap, medicines, and other such products are manufactured in conjunction with the chemical industry.

Erected around clay deposits along the banks of several rivers are brick and roof-tile kilns. Earthenware and pottery, notably the famous Delft chinaware, are products which have an international reputation.

Although much of the glass used in The Netherlands is imported, a great deal is manufactured in Dutch factories, principally in the form of bottles, windows, mirrors, cut glass, hothouse panes, and electric light bulbs.

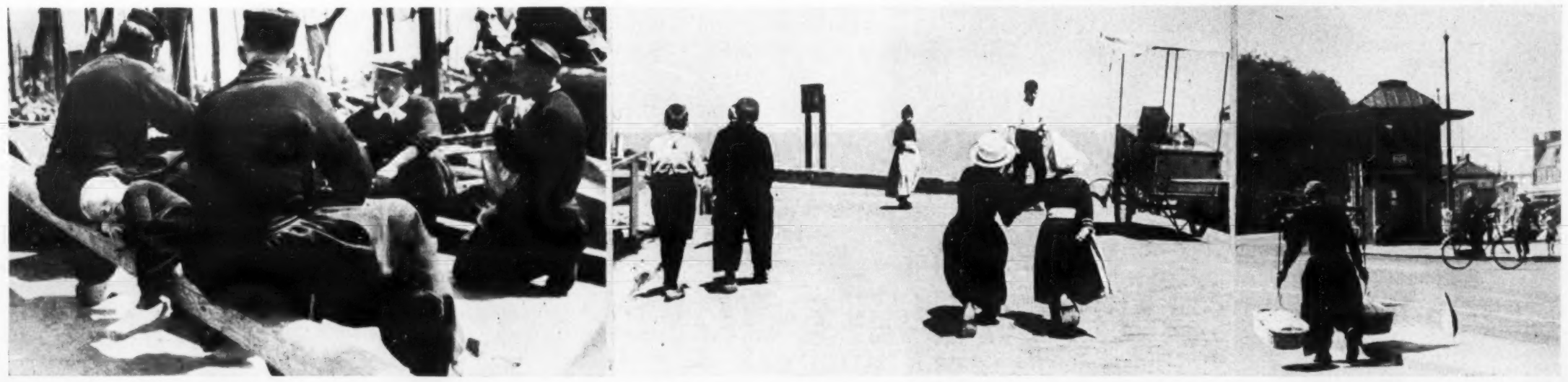
A major portion of the tobacco used by the Dutch in the making of cigarettes, pipe tobacco, and their never-to-be-praised-enough cigars is grown in the Netherlands East Indies.

Courtship in The Netherlands



When a young Dutch couple a-courting go, they do not tear off to an afternoon tea dance or cocktail party. Rather, they take out a pair of collapsible boats like these for a bit of canaling, or go for a bicycle ride. Notice the fine water lines caught by the camera.

Dutchmen Love the Sea — and Make Their Living On It



(1) Swapping yarns on a fishing boat anchored off Volendam. (2) These Dutch children grow up by the sea, and live in an atmosphere saturated with seafaring. (3) Fisher boy coming to market in Amsterdam with his catch in baskets, supported by means of a yoke across his shoulders. This is a trick the Dutch learned in Java.

Determination and Rowboat Win $151,000 Order

CINCINNATI—Using a rowboat to make a follow-up call at the H. S. Pogue department store when the flood was at its height in this city, L. G. Powers, salesman of the Carrier Corp. branch office here, succeeded in closing an order for a $151,000 air-conditioning system.

Although the water did not cripple the store's facilities, it encircled the building. All stores were closed at that time by order of the City Manager.

The $151,000 order was for a 430-ton refrigeration machine, capable of producing daily cooling equal to that given off by 430 tons of melting ice.

In addition to this department store installation, the Carrier Corp. branch here recently received an order to supply a 400-ton system for the Mabley and Carey Co. department store, according to branch officials.

Ritzenheim Heads Detroit Distributing Firm

DETROIT—F. E. Ritzenheim, formerly branch manager of Gar Wood Industries, Inc. air-conditioning division here, has been elected president of the Domestic Air Conditioning Corp., local distributor of Season-Aire and Hess heating and air-conditioning units.

A. M. Kolstad was re-elected vice president and general manager of the distributing firm.

Driscoll Named Carrier V. P. In Charge of Construction

NEWARK — William H. Driscoll, former vice president in charge of mechanical equipment with the Thompson-Starrett Co., has become associated with Carrier Corp. as vice president in charge of construction, according to announcement by L. R. Boulware, vice president and general manager.

A past president of the American Society of Heating and Ventilating Engineers, Mr. Driscoll has been active also as a member of the executive committee and council. As vice president of Thompson-Starrett Co., he was in charge of heating, ventilating, air-conditioning, refrigerating, plumbing, and electrical work.

With the Carrier Corp., Mr. Driscoll will have complete supervision of all installations of Carrier equipment.

Hostetler Opens Norge Retail Air-Conditioning Store

SEATTLE—Hostetler Norge Stores, Inc., has opened a new store at Ninth and Westlake Sts., devoted exclusively to sales of Norge air-conditioning and heating equipment. The company also operates a home appliance store at Sixth and Pine Sts.

— SELLING AIR CONDITIONING —

Dentists Almost Unanimous in Support of Air Conditioning as Strain Reliever & Practice Builder, Survey Shows

PITTSBURGH—Indication that the American dental profession is practically unanimous in its approval of air-conditioned offices as a means to lessening operating strain on the dentist himself and aiding the comfort of his patients is found in returns from a recent questionnaire sent to a representative cross-section of the profession by Oral Hygiene Publications of this city.

Investigating the attitude of dentists who have already installed air-conditioning equipment in their offices and operating rooms, Oral Hygiene Publications sent its query to a list of 230 dentists throughout the country. A 40% return, which the report considers representative, was obtained in response to an effort to determine what air conditioning is doing for the dental profession and to estimate the future market in this promising field of professional office installations.

"The favorable experiences of dentists who are now operating with air-conditioning equipment is emphatic evidence that the dental profession provides an inviting market for this type of manufacturer," the report states.

FURTHER INSTALLATIONS

"Dentists who have become accustomed to the comforts of air conditioning in their offices are likely prospects for similar equipment for their homes. Thus in promoting the sale of such equipment to the dental profession, the manufacturer is indirectly laying an effective foundation for additional sales to residences.

"The practically 100% favorable comments regarding their experiences in greater efficiency and increased comfort is significant in that it illustrates that economic return on their investment is not, by any means, the only consideration," the report adds.

Location, apparently, has little bearing on the possibilities of the field, the editors of Oral Hygiene Publications believe, because answers to the questionnaire came from small towns as well as large cities.

SURVEY DATA

A survey of the field obtained from the questionnaire reveals the following information:

The average length of service of equipment now in use is one year and nine months, 38 reporting equipment over two years old, 23 between one and two years, and 25 less than one year in service.

About 95% of the dentists answering the query maintain offices in professional and office buildings; the rest are located in their homes.

Number of dentists having one operating room is 40%. A like number reported using two operating rooms, and 20% three or more.

Three-quarters of those now using air-conditioning equipment have conditioned their entire office space. One-quarter reported using equipment only in their operating rooms.

Airtemp, Carrier, Cool-Aire, Curtis, Frigidaire, General Electric, Graybar, Kelvinator, Westinghouse, and York are the manufacturers of the equipment used by those answering the query.

Use of the equipment only during the summer months was shown by 81%, with 19% reporting year-round service.

Unanimously affirmative replies were obtained to the questions, "Does your experience lead you to believe that an air-conditioned office decreases the strain of operating work on the part of the dentist?" and another concerning the beneficial effects of conditioned air on patients.

Several dentists reported that "Very few patients now cancel appointments" and "They react favorably to the even, cool temperature, cleanliness, and lack of odor."

A PRACTICE-BUILDER

Especially interesting information on the opinion of the profession toward air conditioning as a practice-builder is to be found in the returns. About 56% stated definitely that air conditioning had contributed to practice growth; 44% gave indefinite but favorable answers due to short periods of observation.

An average increase of 28% in dental practice during the summer months was reported in answer to a question asking how practice had fared during the warm months since the equipment was installed.

A 95% affirmative reply was obtained in answer to a query, "Regardless of any beneficial effect of air conditioning upon practice growth and upon patient comfort, does your experience lead you to believe that it is a good investment solely because of the improved operating conditions for the dentist?"

OPERATING COST HIGH

One dentist, operating a nine-room conditioned office, reported his operating costs too great to state that his equipment was beneficial, although at the same time he reported a 25% to 30% increase in business since its installation.

Such answers as, "It is a good investment because it permits more hours in the chair during summer. It promotes efficiency of the operator," and "I believe installation has paid for itself in six month's time due to my increased capacity for work" were additional comments received to this question.

A concensus of reports concerning summer operating costs of the equipment in use varied between $2 and $8 per month.

COSTS OFFSET

Many dentists replying volunteered enthusiastic endorsements of their equipment, stating that installation costs were offset by less cleaning of carpets and drapes, and that having used office air conditioning and hearing favorable comments from patients, besides their personal satisfaction, they would not be without it.

One southern practitioner predicted that every dental office in the south "will have to be air conditioned" in the near future.

Retail dental dealers, many of whom act as agents for air-conditioning equipment, aided in securing information for the survey. Pearce Dental Supply Co., Wichita, Kan., stated:

"We have had more inquiries on this type of equipment and more interest shown by our customers this year than ever before."

Others asked Oral Hygiene Publications for product information with a view toward seeking franchises from manufacturers.

INSTALLATION COSTS

A section of the questionnaire report, devoted to a discussion of the dental profession as a logical market for air-conditioning apparatus, sets installation figures for single rooms at from $1,200 to $2,500, counterbalancing these high figures by the statement that dentists are accustomed to making substantial investments in office equipment.

Another significant factor is that "people are reluctant to go to the dentist," and points out that natural discomfiture and nervous tension may be partially alleviated by air-conditioned surroundings which have a soothing effect on the patient.

MARKET PROMISING

The survey set the number of practicing dentists in the United State at 64,500, 40% of whom have incomes of between $5,000 and $10,000 per year; 41.8% earn less than $5,000 annually; and 14.5% have yearly incomes of between $10,000 and $15,000. In view of these figures, the market is deemed particularly promising.

York Conditioning to Be Installed in Melville & Woolworth Stores

YORK, Pa.—Contracts to install air-conditioning equipment in 13 additional Woolworth stores and in 21 Melville Shoe Co. stores were secured recently by the York Ice Machinery Corp., according to S. E. Lauer, vice president and general manager.

York equipment will be installed also in the office building of the Shell Oil & Petroleum Co., St. Louis, the Plaza-Laredo hotel, Texas, and the John Gerber Co. department store, Memphis, Tenn., he stated. In addition to these installations, Mr. Lauer said, the company has received an order from the Independent Ice Co., Baltimore, for a 208-ton York ice-making system.

Badger Co. Opens Modernistic Air-Conditioned Showroom

MILWAUKEE—The Badger Refrigeration and Engineering Co., Frigidaire and Delco-Frigidaire dealer, has completed remodeling and redecorating its offices, and has opened a modernistic air-conditioned show-room at 706 W. Wisconsin Ave., in the downtown business district. The firm is under the management of William V. Porter.

KRACK HEAT TRANSFER APPLIANCES

HUM-E-FEX

These coils are especially designed for the maintenance of high relative humidity in the recently developed high-humidity display cases and refrigerators. They are usually made on order to the individual specifications of fixture manufacturers or are engineered by us for their special requirements. Detailed literature will be sent on request.

REFRIGERATION APPLIANCES, INC.
FIN COILS, UNIT COOLERS
AIR CONDITIONING UNITS
923 WEST LAKE STREET • CHICAGO

Here's **NEW** *flexibility*
IN AIR CONDITIONING

One "Freon" air conditioning plant serves separate tenants; each tenant pays a proportionate share of operating cost.

•

Liquid refrigerant is successfully metered for first time.

THE Lincoln Theatre Building, Miami Beach, Florida, is an outstanding example of the flexibility of modern air conditioning.

The system includes three forty-ton Carrier Brunswick compressors using "Freon" refrigerant. The liquid refrigerant is metered and sold on a unit basis. Operating costs are divided between the main individual tenant, the 1300-seat theatre, and the rest of the refrigeration load.

Because of their safety and efficiency, "Freon" refrigerants are used in most outstanding air conditioning installations. "Freon" refrigerants are non-poisonous, non-flammable, non-explosive. They are odorless when mixed with air up to 20% by volume. They have been tested by the U. S. Bureau of Mines, and meet all the specifications set by the Underwriters' Laboratories of Chicago.

Human life and property demand maximum protection under any circumstances. "Freon" refrigerants, because of their unusual safety and efficiency, provide that protection in thousands of air conditioning installations. They are used today in practically all mechanically cooled railway trains, in factories and office buildings, restaurants, schools, hospitals and ships, in mines deep under the earth, in submarines, department stores, and homes.

Be sure that your air conditioning system provides the maximum degree of safety. Specify "Freon" refrigerants.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

AIR CONDITIONING AND REFRIGERATION NEWS

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Goodbye to Our Birthright

ANYBODY who has been close to the problems facing the management of a business in the United States of America during the last three years knows that a relatively new and decidedly important external factor must now be taken into consideration in all planning. That factor is the New Deal government: the multitude of things it has done so swiftly and drastically, and the new bogies, both predictable and unpredictable, which it may set up in the coming months.

Time was when Washington was simply a place where one went occasionally to seek a special favor, such as a protective tariff. For the most part, it was peopled with a set of interesting characters who put on a good show, but did little to interfere with the activities of the business men who really conducted the affairs of the nation.

Fearful of the Future

Today all that is changed. Every business has had to increase its accounting department to handle the complicated bookkeeping made necessary by the levying of new tributes to an extravagant bureaucracy which seems to be having an exceedingly good time redistributing the country's wealth and income. Large numbers of business men have felt insulted by disparaging remarks made by government officials. And practically everybody in business has been made fearful of the future.

The worst fears, it now appears, have been confirmed. The President, sublimely confident in the "mandate" given him by the results of the last election, proposes to take over the Supreme Court, just as he has already made a rubber stamp out of Congress. Thus the government of the United States would be cast in the same mold as that of Germany, Italy, and Russia: with all power vested in the executive.

What such a course could mean to the future of American business is appalling, especially when one considers what has happened to commerce and industry in the other one-man governments. In each the seizing of power by the executive—in short, dictatorship—has been the prelude toward collectivization and the totalitarian state. Business men are forced out, politicians step in, and soon you have an entire nation lock-stepping in the inevitable direction of war.

Heading for War

A democracy has as its purpose the freedom of the individual, "the right to life, liberty, and the pursuit of happiness." A dictatorship has as its purpose the organization of an entire nation into a compact unity for making war on another dictatorship.

It matters not what noble purposes dictators may assign to their motives for grabbing and wielding totalitarian power. Often they may be entirely sincere in saying that what they do is motivated by a desire to improve the general welfare of the people. But history teaches us that the forces of dictatorship inevitably become too strong even for the dictator, and that they lead invariably to war, eventually to self-destruction.

But, you may hear, President Roosevelt is a great and good man. He has no aspirations toward dictatorship. He simply seeks to enact legislation on which America has lagged behind the rest of the world. His path is being blocked by a few old men, set in their ideas, who are sitting in judgment long past the time when they should have retired to putter around in a garden.

They have checked the prohibition of child labor; they have prevented the establishment of codes of fair competition for industry; they have indicated in many ways that they oppose America's progress toward greater recognition of "human rights."

Why should these cantankerous old dodderers be allowed to veto the will of the people, as expressed clearly and unmistakably in the last election?

Pendulum Will Swing

Winsome arguments, these, and no doubt to the blotting-paper type of mind they will seem eminently satisfactory. President Roosevelt, the Friend of the People, is simply packing the Supreme Court with friends as a means to an end—the amelioration of suffering, the curbing of the economic royalists, the redistribution of wealth, and the prevention of depressions. The means, therefore, while not exactly sporting, is considered justifiable.

But what they overlook is that the means, eventually, is bound to destroy the end.

The "liberals" forget the inevitable swing of the pendulum, the reaction which follows action. Suppose President Roosevelt does resist the blandishments of power, and retire at the end of his present term. Another president will be elected. Will he be so altruistic in purpose? What is to prevent him, or some conservative successor, from abolishing the right to strike, suppressing free speech and the freedom of the press, and from placing property rights far above human rights?

These are the courses taken by other men who have persuaded a populace that the executive should be given entire control.

Undoubtedly this is the gravest issue which has confronted the American people since slavery. At the present moment the President controls Congress through patronage, and through his immense political popularity. Under his scheme to "reform" the judiciary, he would nullify the votes of two-thirds of the Supreme Court with the pledged-to-his-side ballots of the new appointees.

Checks and Balances

The birthright of every American citizen is freedom to participate in the blessings accruing from the most democratic form of government yet devised. The tripartite system of checks-and-balances, composed of independently interdependent legislative, executive, and judiciary functions, has been, up till now, next-to-impossible to *control*. There were just too many people to "get to" for any faction to be able to seize the reins.

Hence the exercise of the prerogatives of individual freedom, and the large-scale operation of the democratic principle, have been maintained over a period of time and to a degree unparalleled in the world's history.

Amend; Don't Nullify

If the people of the United States want more forms of social legislation than is possible under the Constitution, they can amend the Constitution, as they have many times before. If they allow the President to nullify the Constitution, and make rubber stamps out of the legislative and judicial branches of government, they are signing away their hard-won birthright.

But, you may say, what has all this political talk got to do with air conditioning and refrigeration? Your job is to make your quota. Aren't we just stirring up a lot of trouble, upsetting people and making it more difficult for you to get your job done this spring?

How it Affects You

The answer to that is that if a lot of people aren't stirred up by the impending dictatorship, your factories may eventually be turning out machine guns instead of compressors, and your salesmen carrying rifles instead of portfolios.

Indubitably the Supreme Court issue is the gravest question which has faced any living American during his lifetime.

— LETTERS —

A Challenge to the Ice Industries Association

Electrical League
of the Niagara Frontier
512 Stock Exchange Bldg.,
Buffalo, N. Y.
Feb. 16, 1937

Editor:

No doubt you will be interested in the attached copy of letter which I sent to O. C. Small with reference to the radio broadcast of the Ice Industries Association. I would appreciate your stepping into the picture and helping the cause of fair play along in whatever manner you may see fit.

SAMUEL S. VINEBERG,
Mgr.-Secy.

O. C. Small
National Elec. Mfgrs. Assn.
155 E. 44th St., New York City

Last night I had the pleasure (?) of listening to the Ice Industry program in the interest of household ice refrigeration. I must say I was somewhat amazed that such misleading advertising would be carried by the National Broadcasting Co. and I do not like to see statements made during that program go unchallenged.

Unfortunately, I do not take shorthand so I haven't the actual wording of the announcements, but I do remember that several times during the program the statement was made that ice refrigeration alone offers air-conditioned food protection, and further that the air in an ice refrigerator is continually washed (presumably by the melting ice), and that it is always fresh and healthful.

I believe that the National Electric Manufacturers Association is the proper organization to take such steps as are necessary to stop this flagrant violation of honest advertising. I believe further that the American Society of Heating and Ventilating Engineers should be called upon to bring pressure to bear in our favor as well, because the term "air-conditioned" is used over and over again, and that Society has established a definition of what air conditioning means; and if the public gets the idea that merely the melting of ice provides air conditioning, then all the good they intend to do in promoting a public understanding of air conditioning as they see it, will be undone.

Will you please start the ball rolling to prevent a repetition of this kind of program? I am sending a copy of this letter to local electric refrigeration men and to managers of other electrical leagues.

SAMUEL S. VINEBERG,
Mgr.-Sec'y.

Canadian Sales in Nema Reports

Kelvinator of Canada, Ltd.
London, Canada

Editor:

On page 24 of your Feb. 3 issue, I notice a tabulation of Canadian sales, amounting to 22,549 household units for 1936.

Will you be good enough to tell me just how this compilation was made. What I cannot quite understand is whether Canadian manufacturers are reporting to you, or whether these figures merely include exports.

C. W. HADDEN,
General Manager.

Answer: We referred your inquiry to Haldeman Finnie, manager, Refrigeration Division of National Electrical Manufacturers Association, who answered it as follows:

"First, may I point out that the figure of 22,549 units which you mention is only the sub-total of those with lacquer cabinets. The total of all units, including porcelain cabinets, separate systems, and separate evaporators, is 24,809.

"This is the total quantity of domestic refrigerators reported by our members as exported to Canada in 1936."

Sorry! We Should Know It

Mills Novelty Co.
Established in 1889
4100 Fullerton Ave., Chicago
Feb. 18, 1937

Editor:

In your issue of Feb. 10 you printed a list of counter freezer manufacturers and gave the address of Mills Novelty Co. as 41 Fullerton Ave.

This should have been 4100 Fullerton Ave. We feel this should be corrected and will appreciate your doing so.

JAMES T. MANGAN,
Advertising Manager.

South African City Finances Appliances

Frost & Holmes (Pty.), Ltd.
Electrical Engineers
Sales and Service
Factory Distributors for:
Frigidaire Electric Refrigerators
Delco-Light Plants, Philco Radios
Meadows Washing Machines and Ironers
Agencies: Chloride Storage Batteries,
Exide Storage Batteries,
Standard Telephones & Cables, Ltd.,
Superfex Oil-Burning Refrigerators,
Lustra Electric Lamps
13 Russell Rd., Port Elizabeth
Cape Province, South Africa
6th January, 1937.

Editor:

We duly received your letter of the 17th October about six weeks ago, and as November and December are our busiest refrigeration months, this letter has been held over for reply until now.

We did not hasten to supply you with the information called for, as we are not over anxious for publicity, except in places where we are selling. At the same time we appreciate your interest in us and we hasten to assure you that your weekly publication is a constant source of interest and inspiration in our business.

We have followed the course of your trip "Around the World" in the NEWS, and before you actually set out we wondered why you did not visit this market where we are selling more electric refrigerators than any where else in the American export field.

From the way you hastened around the world, we cannot call you lazy, except in so far as you failed to visit this country!

You will notice we sell only *Genuine* Frigidaire products, and the writer personally has been connected with the merchandising of Frigidaire refrigerators since they first came to this country at the end of 1924, except for a break of two years overseas, most of which period of time was spent in your great country.

We have no restrictions in regard to tariffs or any other governmental interference. As a matter of fact our local government, i.e. our Municipal City Councils, provide a long term of hire purchase plans extending over two and even three years at very low rates of interest. As a matter of interest, in this city a refrigerator or any other similarly large electrical appliance may be bought under a Municipal Hire Purchase Scheme at an interest charge of 7% over two years.

There is only one very serious complaint we would like to voice in your paper in regard to the merchandising of refrigerators in this country, and that is the ridiculously long periods of guarantee given by most of the American refrigerator manufacturers. We think there are several really guilty parties in your country responsible for these uneconomical business methods.

We do not give long-term guarantees and our replacements, if any, are very slight indeed, but we do encounter great sales resistance when endeavoring to secure orders in competing with refrigerators with guarantees for four years or even longer.

There is one quite well known make of refrigerator being sold in this country on a seven year's protection plan. True, there is a sliding scale in regard to the cost of replacements, but the whole idea is wrong.

Automobiles cost 10 times as much as most refrigerators do, and a standard warranty of 90 days only is given by the factories and maintained in this country. Why then should refrigerators be covered by these long-term guarantees?

We have noticed in recent correspondence that there is a definite move on the part of certain country dealers away from the manufacturing centers, to agitate for the reduction of these long-term periods.

We feel your newspaper is the one medium which may be used to successfully develop a campaign against this very unsatisfactory form of competition.

J. P. SHINGLER,
Manager.

Invitation Accepted

North Shore Refrigerator Service
4020 North Central Park Ave.
Chicago
Feb. 15, 1937.

Gentlemen:

I want to take this opportunity of thanking your editor for the wonderful description he gave of Hungary while on tour.

Every article of his was very interesting, but as I am a Hungarian by birth and have been in Chicago for about 12 years, his vivid details of Budapest and of the People and music made me homesick. He is about the first man who ever wrote about Hungarian customs, music, girls, and scenery who really felt and saw the Hungarian atmosphere.

Please tell him, if he should ever be in Chicago, to call Irving 1666, Stephen Kapner, and I will try to show him the Hungarian life in Chicago. Thanks for some very enjoyable hours while reading about Hungary.

Hoping that I may be able to receive one of these books and thanking you in advance, I remain

STEPHEN KAPNER

Advance Orders

Ideal Repair Shop
McKeesport, Pa.
Feb. 15, 1937

Gentlemen:

I am asking that you please put my name on your list for the Red Book when published, and I also want a copy of Mr. Taubeneck's around the world.

R. P. MCCARTY

New Management

Reproductions Co.
43 Haverhill St., Boston, Mass.
Manufacturer of Artificial Foods, Advertising Sculpture, Placques and Statuettes, Window Display Material
Feb. 18, 1937.

Gentlemen:

We have written you a number of times that the Reproductions Co. have been under new management for the past two years and since that time we ran an ad in your paper and paid for it.

We have nothing to do with any transactions previous to February, 1935.

M. C. CUNNIFF.

Sales by Counties Not Available

Monroe Hardware Co., Inc.
Distributors Electrical Appliances and Supplies
Monroe, La.
Feb. 8, 1937.

Editor:

Is it possible for you to advise us the N.E.M.A. sales figures on electric refrigerators for Union County, Arkansas, for 1936?

If it is possible for you to do so, we would appreciate your furnishing us with this information.

W. B. MEEK, Manager,
Electrical Department.

Answer: Nema figures are not released by counties, and we therefore regret that we cannot give you any sales figures for Union County, Ark.

Unexpected Demonstration

When Parker Ericksen, Fairbanks-Morse radio sales manager, visited Norfolk, Va., recently, he had no intention of addressing 3,200 women on the subject of Fairbanks-Morse refrigerators, but the picture is evidence that he did. It was taken at a cooking school sponsored by the National Live Stock and Meat Board and conducted by Miss Ruth Chambers and Miss Emily Conklin, the latter shown above. Although the demonstration was not on the program, John S. Garceau, advertising and sales promotion manager for F-M, saw a good opportunity for some promotion, inasmuch as the local F-M distributor had been active in promoting the school. Hardest job, Mr. Garceau reports, was getting Mr. Ericksen, accustomed to addressing dealers, to face 3,200 women.

Joslin's Sets Up Appliance Shops

DENVER—Joslin's local department store is establishing branch stores to push neighborhood business in refrigerators and other major electrical appliances, according to E. J. Kaltenbacher, credit manager.

One of these branches already has been set up at the corner of Colfax and Cherry, and it is expected that three of four others will be in operation by May 1.

These branches not only serve as showrooms, but also facilitate the rapid servicing of electrical appliances, Mr. Kaltenbacher says. Appliance orders are taken at these branch stores, but all merchandise is shipped from the downtown store. All payments on credit accounts are also handled at the main store, although each branch has a separate manager.

The advertising campaign for these branches includes handbills as well as newspaper advertising.

Sell a Crate Alone? Not Burt Wood

BANNING, Calif.—Another proof that the power of suggestion is definitely a cash register ringer was established recently when Burt Wood, General Electric dealer here, and his salesman Earl Nowell, stepped up a sale from 25 cents to $200 and got a $50 down payment to boot.

The dealer and salesman were out in front of the store uncrating a V-5 model G-E, when a passerby stopped and offered them 25 cents for the crate. Within an hour, the crate—and the refrigerator it contained—were shipped to his house, and his $50 down payment was entered on the dealer's books.

PORCELAIN ENAMEL
Fused on Metal

More and more women are looking at the gleaming white refrigerator on the sales floor, and saying: "Yes, it *looks* lovely—but how long will it stay that way?"

Don't make the mistake of finishing *your* refrigerator in anything that will soon become a reflection on your good manufacturing judgment. Use porcelain enamel throughout. It is *the* lifetime finish.

PORCELAIN ENAMEL INSTITUTE, INC.
612 North Michigan Avenue • Chicago

PORCELAIN ENAMEL
Fused on Metal

PROFITABLE SALES METHODS

Strict Supervision of Salesmen and Well Trained Crew Credited with Five-Week Record of 71 Sales by New Dealer

KANSAS CITY—Strict supervision and a well trained outside selling crew are the two factors to which E. R. Ascue, manager of the electrical appliance department at Durr & Repp, furniture store here, ascribes his department's record of 71 Westinghouse washer and ironer sales during the first five weeks of its existence.

In advertising for salesmen, the first step in his selling program, Mr. Ascue doesn't even suggest that applicants need be experienced in merchandising appliances.

"After we have picked new men from the applicants we give a complete demonstration of the laundry equipment line, to see if the men would like to sell it," he declares.

Men who are hired are then put through a three-day training course covering the laundry equipment line. Next they are turned over to a supervisor who works with them until he feels sure that they can go out and sell for themselves, the manager states.

"We believe that close supervision of salesmen is the secret of any outside operation, because without it 10 out of 50 men are apt to get out of their selling stride, and wind up at the ball game or the movies," says Mr. Ascue.

"We have found also," he adds, "that six or eight men are the most that one supervisor can direct at one time."

The procedure for outside canvassing Mr. Ascue outlines as follows:

"After a short sales meeting held at the store each morning at 8 o'clock, a supervisor and his crew mounts a truck stocked with washers and ironers, and drives to the district in which the men are scheduled to work for the day."

The men will secure as many as 10 demonstrations a day, and the crew supervisor aids the men in demonstrating equipment in closing sales, Mr. Ascue states.

Finds Churches Are Good Prospects and Prospect-Getters

MILWAUKEE—Selling a group of appliances to be used as prizes at church and club picnics and carnivals has not only increased the business of the Illian Hardware Co., Westinghouse dealership here, but also has been a valuable means of getting new prospects, according to Bob Illian, company head.

First step in making sales of this type consists in keeping in touch with officials, pastors, and committees whose organizations are planning social events at which prizes will be given, and selling them on the idea of giving appliances.

Next Mr. Illian plays up the appliances prizes by displaying them in his showroom window. This tactic, he claims, not only pleases the group sponsoring the event, but also attracts prospects to his showroom window.

For one church party, Mr. Illian recently sold a refrigerator, two washers, a cleaner, and four table appliances. He also supplied a refrigerator, roaster, and three table appliances, bought for another church sponsored event.

A third group sale written down in the Illian Hardware Co.'s books was for a washer, radio, roaster, and sandwich grille.

Such orders for group equipment sales, Mr. Illian claims, are only the beginning of his profits on this type of promotion. Following one church party, he sold two Westinghouse refrigerators, a washer, ironer, and several table appliances, to prospects secured by this means, he states.

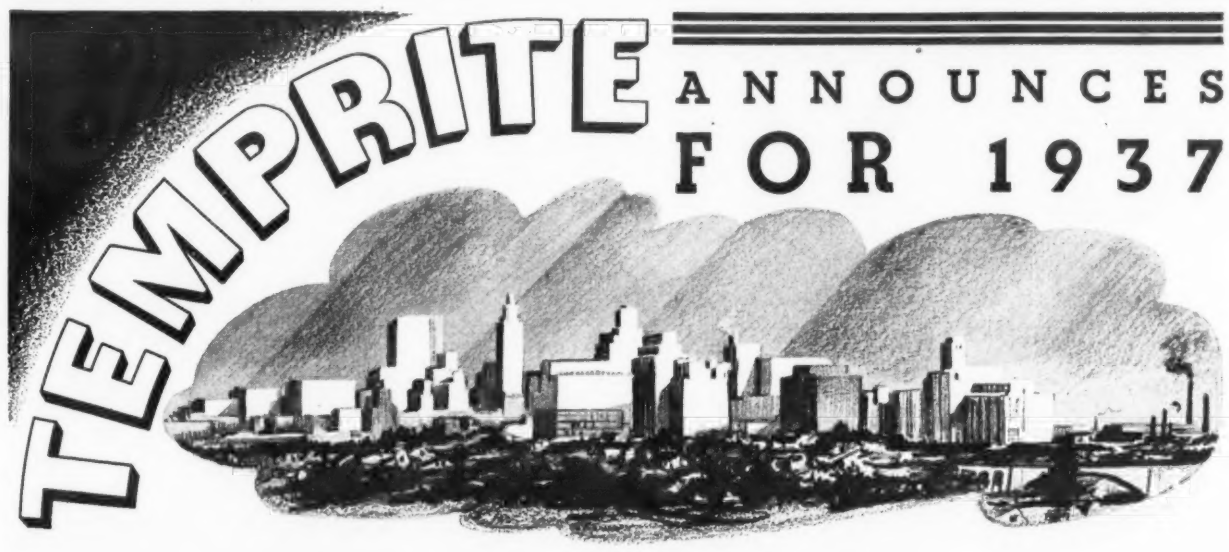
3 F-M Factory Crews Presenting Products

INDIANAPOLIS—Carrying portable stage equipment, three factory crews from the home appliance division of Fairbanks, Morse & Co. are presenting the company's 1937 products and advertising plans to dealers in various sections of the country.

First crew is composed of General Manager W. Paul Jones, Joe Hopwood, and True Wagoner; second of Radio Sales Manager Parker H. Ericksen, Advertising Manager John S. Garceau, and Earl Hiatt; and third of W. S. Shaw, Henry Hayward, and William Macke.

Standard stage equipment is used by all three crews, the stage itself being designed for assembly in rooms of varying height and width, so as to provide effective presentation of models, regardless of the size of the room used.

TEMPRITE ANNOUNCES FOR 1937



Model 22-W

Model 122 and 135

Model 322

★

1 NEW—MORE BEAUTIFUL STYLING
Modern styling with smooth, flowing lines never before available in drinking fountains, and in special colors to harmonize with any decorative scheme. The entire drinking fountain made in one piece.

2 NEW—ENGINEERING
Designed to eliminate the need for insulation. The refrigeration goes into the water—not into the room.

3 NEW—PERFORMANCE
When equipped with Model 35-W cooler the fixture can deliver a continuous stream of water cooled from 80° to 45°, a capacity never before attained in drinking fountains.

4 NEW—SANITATION
Temprite exclusive two-stage drain makes doubly sure that the drain can never clog and cause water to back up to the bubbler jet. This feature makes Temprite the most desirable drinking system in plants—mines—foundries—cotton mills, etc., where the air contains either dust or lint.

5 NEW—OPERATING ECONOMY
The water is cooled at the bubbler—not in the basement. In the conventional system line losses and stand-by losses may easily exceed 60% of the total operating cost. These losses are completely eliminated by the Temprite multiple system.

6 NEW—"FIRST DRINK" SATISFACTION
The first ounce of water drawn through a Temprite is properly cooled. Never a disappointingly warm first drink, nor the losses that go with it.

7 NEW—CONCEPTION OF TEMPERATURE CONTROL
No matter how many temperatures are used on one system each unit has its own independent temperature control. This setting is maintained the year 'round regardless of demand or weather.

8 NEW—QUIETNESS
The compressor operating the Temprite is installed remote—no noise at the cooler.

9 NEW—SIMPLIFIED CONSTRUCTION
By simply removing the bubbler jet the entire porcelain fixture can be removed, exposing the cooler, water lines, refrigerant lines and drain lines intact. This is unique in water cooler design.

10 NEW—ADAPTABILITY
Temprite fixtures operate equally well in high temperature surroundings. Steel mills, iron foundries, glass plants, porcelain enamel plants, potteries, brick and tile plants have found Temprite the only unit that can handle the job. "Wherever drinking water is required Temprite will cool it."

TEMPRITE PRODUCTS CORP.
Detroit, Michigan

New Brunswick Carrier Plant on 3 Shifts

NEW BRUNSWICK, N. J.—The branch plant of Carrier Engineering Corp. here is employing three shifts to fill its orders, according to announcement by M. G. Demougot, plant manager, who declared the increased demand for air-conditioning and refrigerating units is responsible for the rush of work.

Additional help has been hired at an average of five to six persons a week during the last eight or nine weeks, he said, adding that the firm has been confronted with a shortage of skilled mechanics.

The local plant manufactures reciprocating type condensing units for refrigerating and air conditioning. Its present employes total more than 200, which exceeds the total number of employes a year ago by 50, Mr. Demougot stated.

Associated Wholesalers to Sell Crosley in Los Angeles

LOS ANGELES—Associated Wholesale Electric Co., former distributor of Atwater Kent products, has been appointed distributor of Crosley refrigerators, radios, and washing machines in the Southern California territory. C. D. Russell is president of the company.

Rubber in Engineering Discussed at Meeting

DETROIT—"Rubber in Engineering Structures" was the topic which Dr. Sidney Cadwell of the United States Rubber Products, Inc. discussed at the regular monthly meeting of the Detroit section of the American Society of Mechanical Engineers, held in the Wardell hotel here Feb. 23.

For the Distributor-Contractor in Air Conditioning

This is No. 5 in the series, "How to Select and Install Air-Conditioning Systems" by T. H. Mabley, chief engineer for a Detroit air-conditioning distributor.

Out of his experience with this and other contracting firms Mr. Mabley outlines the procedure in selecting and installing equipment for specific applications, and discusses any special features of the job which may be involved.

HOW TO SELECT AND INSTALL AIR-CONDITIONING SYSTEMS

By T. H. Mabley, Chief Engineer,
Mechanical Heat & Cold, Inc., Detroit

Case No. 5

A Beauty Parlor

A beauty parlor installation presents problems which are typical of those in the small commercial field that come before the application engineer.

The particular beauty shop which we will consider is located on the first floor of a block of stores, and the space above as well as the basement below is occupied by other tenants. These facts, along with the physical arrangements of the building, somewhat limit the choice of equipment.

The purchaser is primarily interested in summer cooling. The heating system is adequate, humidification is not essential particularly in this type of establishment, and air cleaning would be thought of as a luxury that might be considered only if the cost could be kept down to a minimum. As for ventilation, the present exhaust fan serves the purpose of exhausting enough air to reduce the odors and high humidity content.

Thus the problem boils down to simply cooling and dehumidification, which after all is done simultaneously by a cooling coil.

For the limits of operation a 13° temperature differential is selected for a basis. When the outside temperature is 93° dry bulb and 75° wet bulb, the air-conditioning system will maintain 80° dry bulb and 55% relative humidity.

It might be noted here that a slightly higher than normal relative humidity is used for the inside conditions. This was purposely selected because of the fact that in a job such as this one the latent load is naturally expected to be higher than normal due to the many appliances which are evaporating moisture and tend to increase the moisture content of the air.

To bring the humidity to a lower figure would mean not only a higher total load figure but would also lower the ratio of sensible to total heat. This in turn would require the equipment to operate at a lower refrigerant temperature or the air-conditioner cooling surface must be much larger. Since economy and first cost are of prime importance in this case we will use the higher figure for inside relative humidity as long as it comes within the comfort zone.

Layout for Beauty Parlor Installation

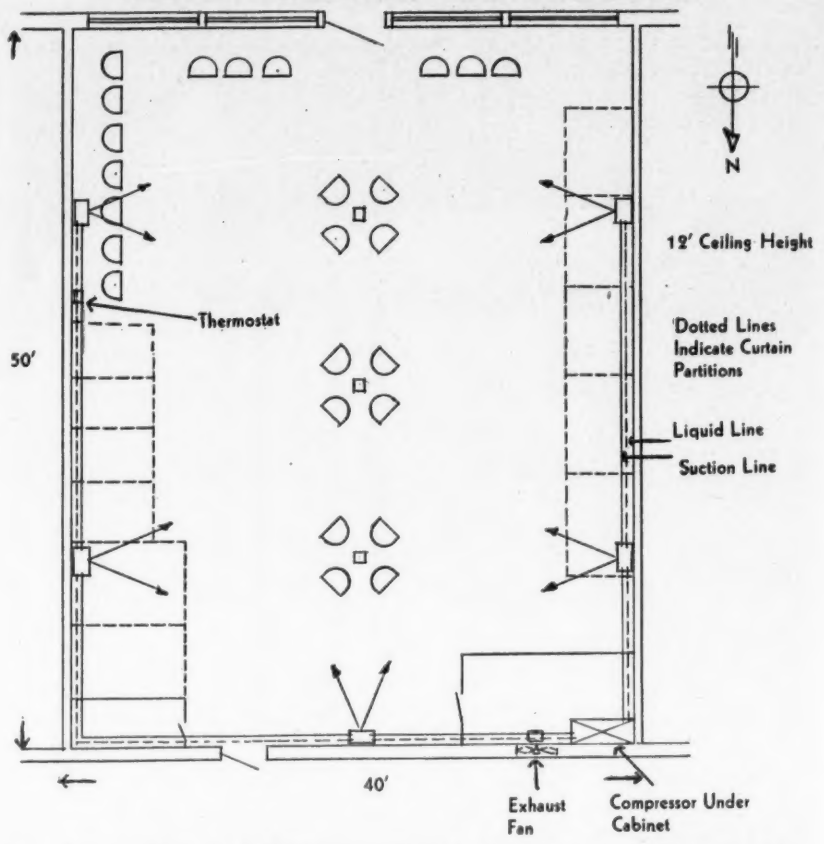


Fig. 1—Drawing showing recommended location of wall-type unit conditioners, and controls, in beauty parlor installation.

FIGURING SUN EFFECT

Looking at the heat gain calculations for this problem (Table 1), we find item for sun effect for the front windows amounts to approximately 4½ tons.

In making a rough check of equipment costs and operation cost it may be readily concluded that awnings will pay for themselves in a very short time. For this reason the estimated reduction in heat gain when awnings are used on the front of the store is deducted from the sensible heat figure and until more definite data is available we will find figures varying from 60 to 85% for the heat gain saving when awnings are used.

It may be easily understood why the heat gain from sun effect is not eliminated entirely when we consider the heat transfer through glass from the high temperature built up under the awnings, and also the effect of reflected heat from the pavement.

In studying the item of fresh air it might be observed that 25 c.f.m. per person is rather liberal—yet in this type of work plenty of fresh air should be provided. Furthermore, the exhaust fan which removes odors from the preparation room or so-called "kitchen" will normally exhaust more than this quantity of air. It will be necessary to equip this fan with adjustable louvres to control the flow of exhaust air from the conditioned area.

With respect to the selection of equipment: there are two ways to handle this type of air-conditioning application.

A central conditioner with a duct system could be installed to distribute air evenly throughout the conditioned area, or units could be installed at various points around the space and connected to a single compressor.

UNIT ARRANGEMENT

The latter arrangement is selected for two reasons: (1) both sidewalls and ceiling are cut up with protruding beams and columns which are covered with fairly elaborate ornamental trim; (2) the purchaser is only leasing the store space and does not want to invest too much money in permanent equipment. The installation of ducts along the sidewalls or down the center of the ceiling would be costly if done properly as it would mean concealing of ductwork with furred plaster, matching the present ornament, and finally redecorating. All this would become a permanent part of the building and could not be salvaged if the tenant moved to a new locality.

It might be worth mentioning at this point that in such cases as these it would be well if the building owner would take some interest and perhaps participate in the purchase of the air-conditioning system. The value of the property would be increased if a part or the whole system were to become a permanent part of the store space.

In such a case both the tenant and owner might profit and the choice of the type of system might be materially affected. The compressor and possibly the air conditioner could be the property of the tenant, but at least the duct system could remain as a fixture to the building.

With respect to this particular application, however, the tenant having to take the full responsibility for the purchase of the equipment naturally will select the unit system because a greater part of this system may be relocated in any similar establishment.

From manufacturers rating data, five conditioners having a total capacity of slightly greater than 124,752 B.t.u. per hour at 42° F. refrigerant temperature can be selected, and at this temperature with 80° and 50% relative humidity entering air we get a performance ratio close to the figure indicated by the load calculations.

The air conditioner will be equipped with a direct expansion coil and a propeller type fan. These units should also have vertical deflection grilles or vanes for the purpose of deflecting the air stream both right and left to assure even distribution throughout the space without danger of drafts.

This feature is very important in such installations as a beauty shop and other places where people are seated in one place for any considerable length of time. Ordinarily these units with propeller type fans are not equipped with filters.

In this particular case if the purchaser so desired, the unit at the center rear of the space could be

(Concluded on Page 19, Column 1)

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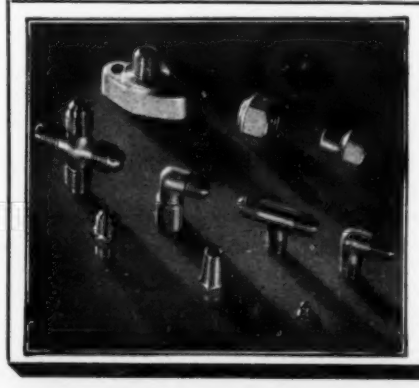

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Beauty Parlor Installation Merits Some Special Considerations

(*Concluded from Page 18, Column 5*)

of the blower type and could be provided with filters to introduce the proper quantity of fresh filtered air into the area from an opening in the rear wall directly in back of the unit. A steam-fed tempering coil could be added also to this unit for winter use so that outside air could be drawn in, filtered, warmed, and introduced into the space during the heating season. This unit might then perform the function of filtering and do some cooling of the ventilation air with only a small part if any of recirculated air.

Final step is the selection of a compressor which will give the required output at a refrigerant temperature not higher than 39° F.

The conditioners are mounted on the wall at about a height of 9 ft. and the refrigerant and drain lines from these units can be carried along the top of the wainscoating and concealed by means of a 6-in. vertical panel run about 3 in. out from the wall.

The only available space for the compressor is under one of the cabinets in the "kitchen." Due to the excessive heat in this location and the danger of objectionable noise, provision must be made to box in the compressor. This usually requires some means of cooling the compressor motor after the machine is totally enclosed.

As found in many such cases it will be necessary to increase the electric power service to the store to handle the additional load as the present service is almost loaded to capacity with the many electric appliances. A new water line will also have to be run from the main in the basement. The work required for these connections is familiar to the plumber and electrician and need not be discussed in detail here.

Table 1—Heat Gain Calculations

Sensible Heat

	B.t.u.
Sun Effect:	
Front windows and door—298 sq. ft. x 180	53,640
Front wall—182 sq. ft. x 10 (B.t.u. per sq. ft.)	1,820
Conduction Load:	
Rear windows and door—54 sq. ft. x 1.10 x 13°	772
Rear wall—426 sq. ft. x .46 x 13°	2,548
Partition—1,200 sq. ft. x .28 x 10°	3,360
Floor—2,000 sq. ft. x .59 x 10°	11,800
Ceiling—2,000 sq. ft. x .59 x 10°	11,800
Fresh Air Load:	
Normal infiltration is approximately 1½ air changes which is equivalent to 600 c.f.m. However, the recommended requirements would be 25 c.f.m. per person. 25 c.f.m. x 30 persons—750 c.f.m.	
750 c.f.m. x 1.03 B.t.u. x 13°	10,043
Light load—1,000 watts x 3.4 B.t.u.	3,400
Appliance load—2 permanent wave machines, 10 hair driers	27,200
Occupancy—30 persons x 220 B.t.u.	6,600
Total Sensible Heat	**132,983**
If awnings are used reduce sun load on windows 75%	40,230
Net sensible heat with awnings	**92,753**

Latent Heat

Occupancy—30 persons x 180 B.t.u.	5,400
Fresh air—750 c.f.m. x .64 x (104—84) Grains	9,600
Appliance load	17,000
Total Latent Heat	**32,000**

Total Heat

Total Heat	**124,753**

Ratio .744.

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Rex Service Co. Purchases U. S. Hermetic Inventory

CHICAGO—Rex Refrigeration Service, Inc., has purchased from General Household Utilities Co. all the parts, units, cabinets, tools, and equipment in its Marion, Ind., plant, according to John H. Jennings, president of the company.

The equipment includes U.S. Hermetic refrigerators, assembling, repairing, and refrigerator building equipment, as well as the plant's complete servicing department and units under warranty, Mr. Jennings said.

All of the Marion plant's equipment is being moved to Chicago, to augment Rex's servicing facilities.

The company recently moved from its old quarters, at 446 East 79th St., to a new and larger location at 2226 South State St., Mr. Jennings said. New quarters cover about 8,500 sq. ft. of floor space, and include special equipment for the servicing of hermetically sealed refrigerating units.

Rex has been in the refrigeration servicing and rebuilding business for the last eight years.

INFORMATION FOR SERVICE MEN

G-E Gives Suggestions For Reconditioning of Flood-Hit Equipment

SCHENECTADY—General Electric Co. has issued a bulletin giving advice regarding the reconditioning of the electrical elements of air-conditioning and refrigeration equipment which was covered by flood waters.

With the river's crest fallen—says this advice—one of the important considerations in reconditioning electrical equipment is speed. Water-soaked windings rapidly deteriorate, and contacts and bearings corrode.

It is explained that two other very important considerations in motor windings are to avoid possible injury by not allowing drying temperatures to exceed 90° C. (190° F.), and by raising temperatures very slowly in order to avoid bursting of insulation by too rapid vaporization of moisture. Several hours should elapse between the start of the drying process and the time when the maximum temperature is reached.

Motor windings may be heated by blocking rotors and applying 20% to 25% line voltage. Voltages may be limited by placing suitable resistances in the motor circuits, or by connecting four or five motors in series and applying full line voltage.

In the case of slip ring motors, the rotor should be short-circuited and blocked, and the voltage applied to the stator.

For other three-phase motors in series, connect "two phases on each motor together to one lead and the other phase to the next motor. With a two-phase motor, use one phase for the single-phase connection, and connect the ends of the other phase together. Turn the rotors by hand occasionally."

Transformers, motor controls and switches, and similar auxiliaries should be thoroughly cleaned and all contacts polished, and afterward oven-baked for 24 hours at 125° C. (257° F.). All wiring should be replaced with new wire. Compressors should be disassembled and cleaned, all grease and refrigerant being replaced.

As a matter of course, all equipment should be cleaned and dried, and rust and corrosion removed. Shafting, bearings, etc., should then be coated with oil.

Initial drying may be accomplished easily by blasting with moisture-free compressed air, although all electrical equipment should be oven-baked as described above.

Many New Valves in 1937 'Imperial' Line

CHICAGO—Many completely new or redesigned products are included in Imperial Brass Co.'s 1937 line of refrigeration and air-conditioning equipment.

New valves include a pressure relief and emergency valve, an evaporator liquid valve, two types of small service drum valves, and an evaporator suction valve.

Two high side floats also are included in the new line. One is for use with sulphur dioxide, Freon, and methyl chloride, while the other is for use with sulphur dioxide only.

Several new sizes have been added to Imperial's line of fittings. All tees and elbows have been redesigned, and in the future will be furnished with flats for wrench hold.

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Greater Sales through Competent Service is G-E School Keynote

SCHENECTADY — Higher sales volume through the establishment of competent service was the keynote of two five-day domestic appliance schools held at the General Electric Co.'s refrigeration plant here.

Service managers and service men from distributorships, dealer outlets, and utilities of the east, south, and midwest attended the meetings. Chris Steenstrup, chief refrigeration engineer, and W. C. Noll, manager of the product service division, Cleveland, welcomed the groups.

Constructional features of G-E's domestic appliances were covered in detail by engineers from the company's various plants. Efficient appliance service was especially stressed.

R. C. Sheahan, product service division, Cleveland, made the refrigeration presentation, assisted by R. F. Roider and Ralph King. Leonard Vogel and J. H. Powers handled the Disposall discussion. Byron C. Wagner analyzed service problems in connection with the dishwasher. Ralph Evans and Fred Cuffe presented the range product story.

J. H. Stubbs, Cleveland, and J. J. Walker of the Schenectady refrigeration engineering department had charge of the meetings.

A. Wayne Merriam, Inc., Schenectady distributor, led the attendance roll with a service man from each of its sales outlets.

Second of Series on Servicing of Copeland Household Units

Editor's Note: The following article, second in a series of two on servicing Copeland household refrigeration systems, deals with the Copeland units made in recent years by Copeland Refrigeration Corp. of Detroit. Last week's article covered early Copeland systems.

Mr. Newcum has simplified the problem of describing the service complaints and service operations by referring the reader to those parts of his MASTER SERVICE MANUAL which cover the service problems and operations for the type of system involved.

Thus in order to get the full benefit from this article, it would be best for the reader to have a copy of the MASTER SERVICE MANUAL, or a file of the issues of the NEWS in which the information appeared serially before being published in book form.

Further valuable information on Copeland models of all years will be found in the 1936 REFRIGERATION AND AIR CONDITIONING SPECIFICATIONS BOOK, including such service information as refrigerant and oil charges, belt size, types of controls, etc.

INSTALLATION AND SERVICE METHODS

Design and Service Operations On Recent Copeland Systems

BY K. M. NEWCUM

The Copeland household electric refrigeration systems discussed in the article in last week's issue of the NEWS were manufactured by the Copeland Sales Co. at Mt. Clemens, Mich., and used Iso-Butane as the refrigerant.

The company is now known as Copeland Refrigeration Corp. and is located in Detroit. The household refrigeration systems now manufactured by this company (and which are discussed in the following article) use methyl chloride as the refrigerant.

Refrigeration cycle of the Copeland household system is shown in Fig. 1. The compressor is of the two-cylinder, reciprocating type, using eccentrics.

The compressors are equipped with the two standard shut-off service valves, Nos. 1 and 2.

The evaporator is a dry expansion type, using an automatic expansion valve as the refrigerant control.

The condenser is of the radiator type, and the vertical liquid receiver is equipped with the standard shut-off service valve No. 3. Temperature control is by thermostat.

TYPE "3A" SYSTEM

This arrangement comprises a Type "3A" system as described in the 1936 Master Service Manual. General service instructions given on pages 222 to 237 of the Master Service Manual would therefore apply.

(Concluded on Page 21, Column 3)

Fig. 3—Piston & Valve

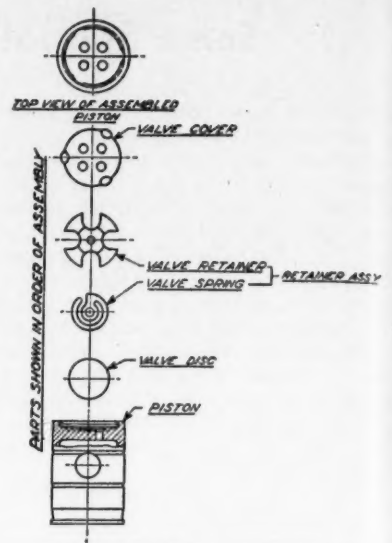

Fig. 3—Piston assembly.

Fig. 4—Discharge Valve Assembly

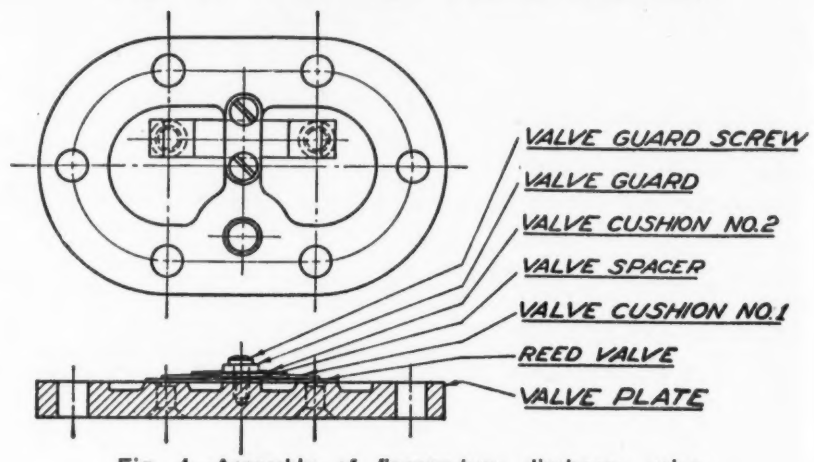

Fig. 4—Assembly of flapper-type discharge valve.

Fig. 1—Refrigeration Cycle

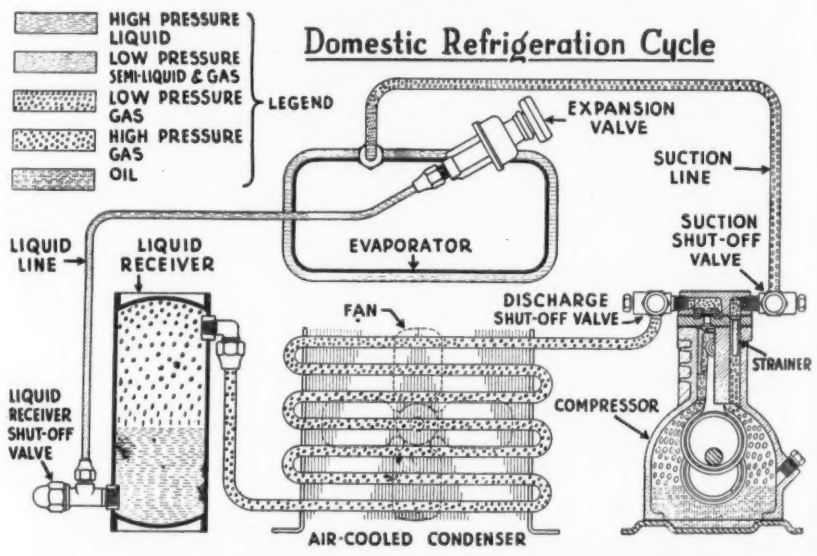

Fig. 1—Refrigeration cycle of the Copeland household system.

Fig. 2—Cutaway Copeland Compressor

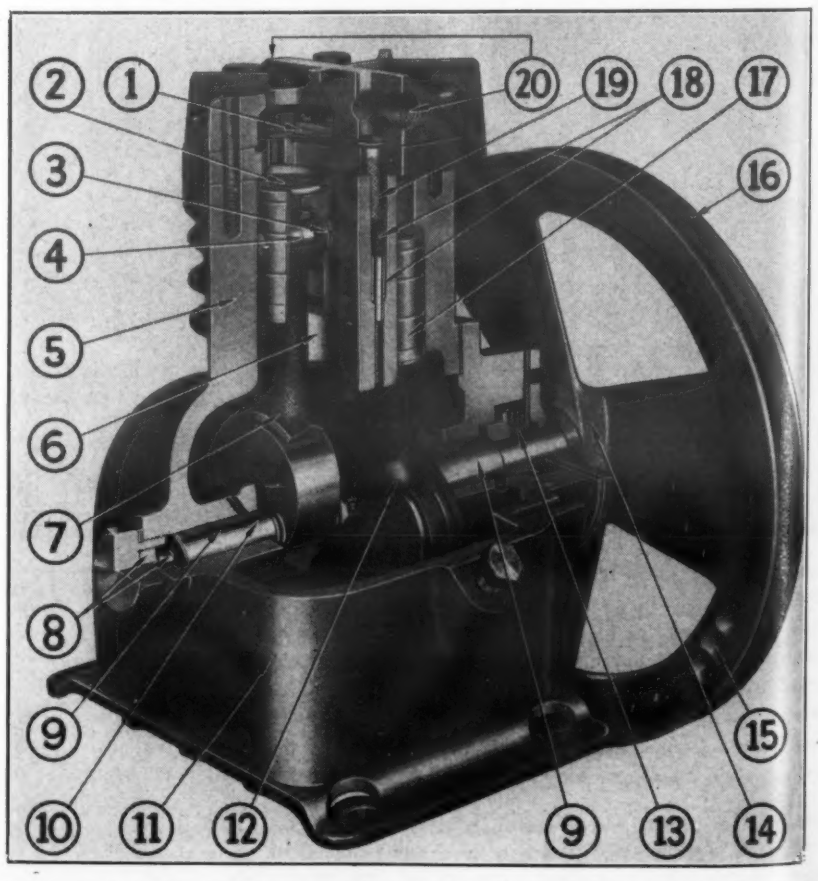

Fig. 2—Key to numbered parts: (1)—Multi-reed discharge valve. (2)—Spring-disc intake valve. (3)—Lubricated wrist pin. (4)—Spring thrust washer. (5)—One-piece body. (6)—Diamond-bored, micro-honed, hand-lapped cylinder walls. (7)—Diamond-bored connecting rod. (8)—Shaft thrust ball with hardened insert and plug. (9)—Oversize bearing. (10)—Eccentric shaft. (11)—Crankcase. (12)—Directional oil distributor. (13)—Balanced seal. (14)—Fan-blade type spokes. (15)—Balanced flywheel. (16)—V-belt drive. (17)—Pistons. (18)—Cylinder and piston oiling system. (19)—Suction line screen. (20)—Service valves in head cap.

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Vol. 7—1937 Refrigeration and Air Conditioning Directory

Vol. 8—Air Conditioning Made Easy—By F. O. Jordan
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Fig. 6—Automatic Expansion Valve

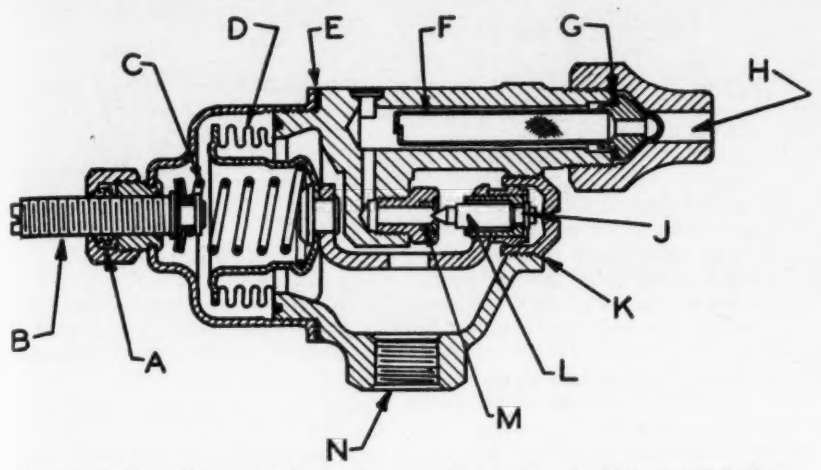

Fig. 6—Automatic expansion valve employing the flexible metal bellows. (A) moisture-tight packing around adjusting screw; (B) adjusting screw; (C) adjusting spring; (D) bellows; (E) joint; (F) strainer; (G) copper gasket; (H) inlet connection ¼-inch copper tube; (J) needle swivel; (K) plug hermetically sealed with solder; (L) needle; (M) seat; (N) outlet connection.

Fig. 7—Expansion Valve & Control Arrangement

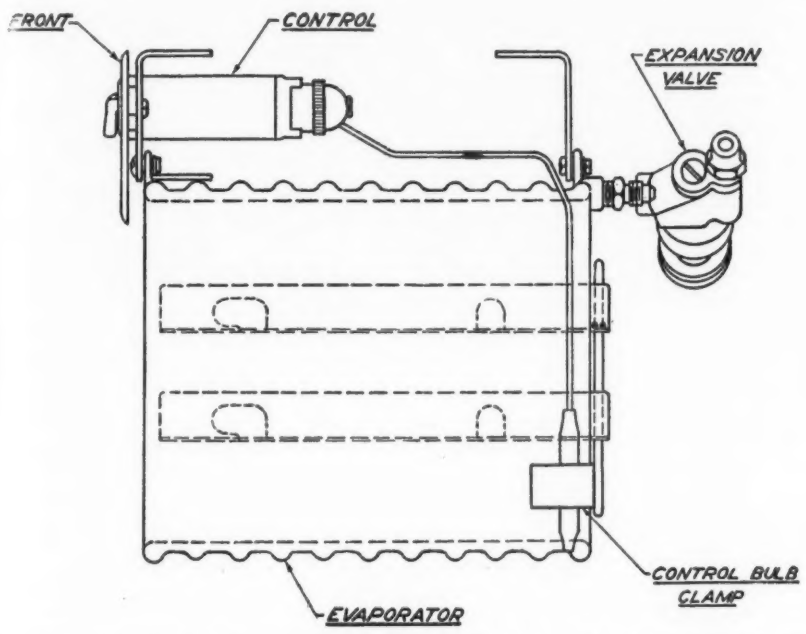

Fig. 7—Location and arrangement of expansion valve and control on evaporator.

Fig. 8—Electric Light Assembly

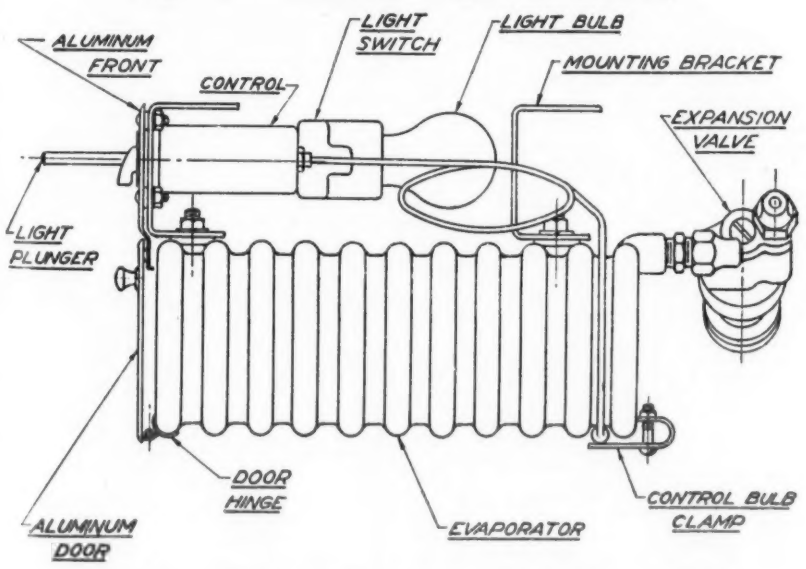

Fig. 8—Location of light socket and operating switch.

Fig. 10—Switch Mechanism

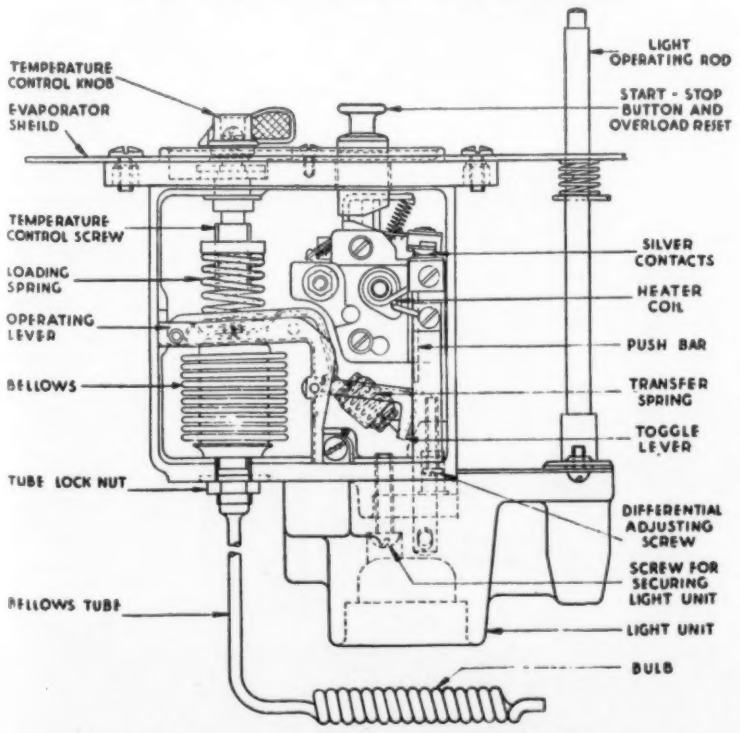

Fig. 10—Switch mechanism and parts for interior light.

Fig. 5—Seal Assembly

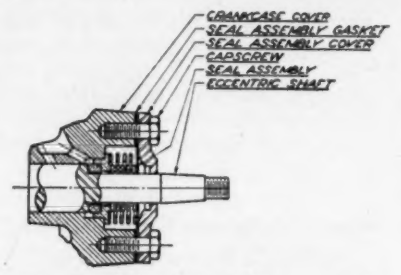

Fig. 5—Balanced stationary seal.

Service Methods on Recent Copelands

(Concluded from Page 20, Column 4)

A cutaway model of the Copeland compressor used on Copeland household models C2-16 and C2-20 is shown in Fig. 2. Each part of importance is given a number, and the part described.

The piston and piston (suction) valve assembly is shown in Fig. 3. The valve consists of a spring steel spring disc resting on a lapped surface of the piston. The lift of the disc is approximately .05 inch and is cushioned by a concentric spring.

The valve is held in place by a valve retainer insert. This insert has three lugs protuding on the edge which are fitted into three notches in the piston head; the insert then rotates until it is wedged firmly in position.

A round stone or tool may be used for lapping the piston valve seat. The piston fit in the cylinder is held to close limits, and must be matched. The nominal piston diameter is 1.25 inch, but actual diameters of the four groups furnished by the factory are as follows: No. 0—1.2498; No. 2—1.2500; No. 4—1.2502; No. 6—1.2504.

The piston will be marked as above to indicate the size included in the assembly at the factory.

The discharge valve is composed of a series of steel reeds, the bottom reed actually being the valve. These reeds are clamped in the center of the valve plate, and each end of the valve end closes over the orifices in the discharge valve plate.

This assembly is often referred to as the flapper type of discharge valve. The valve seats are in line with the top of the plate, and therefore may be lapped on a lapping block or plate glass. This assembly is shown in Fig. 4.

The location of the seal assembly may be noted in Fig. 2. (Part No. 13). It is of the balanced type. It is non-rotating, and seals against a shoulder on the eccentric shaft as may be noted in Fig. 5. Seals of this type are discussed in detail in Paragraph 55, pages 47 to 52, of the Master Service Manual.

The expansion valve is of the automatic type as shown in Fig. 6. The standard factory back pressure setting on the Copeland household system's expansion valves is 5 lbs. to 6 lbs. It is sometimes necessary to vary this adjustment slightly. If the standard rules are followed, good results may be expected.

The arrangement of the evaporator expansion valve and control is shown in Fig. 7. Note the location of the thermostat bulb. Note also that the expansion valve is located at the rear end of the evaporator, on the 1936 models, and on the 737 and 937 models for the 1937 line. On all other models the valve is located on top of the evaporator. All models except the 737 and 937 will operate at 4 to 5 lbs. back pressure.

The light socket and operating switch are located on the attachment prongs of the control. Operation is effected by the switch plunger, (see Fig. 8) extending through the evaporator baffle front so that it strikes the door jamb. The light switch will operate on 1/16-inch movement, but has ¾-inch overall travel to compensate for variations in location.

The wiring diagram is shown in Fig. 9. This applies to 1936 models, and to models 737 and 937 in the 1937 line. In all other models the light is operated by a door switch in the side of the cabinet.

The light switch mechanism and parts are illustrated in Figs. 10 and 11. Whenever control changes are made, the replacement should be the same as the type replaced, so the light switch and plunger may be used.

The temperature control is set to give normal operation at No. 5 position on the cold control dial. The temperature may be lowered by turning to the right, or vice versa.

The heater coil furnished in the control for a 1/6-hp. 60 cycle 110 volt is 4.2 amp. Where the motor size is 1/5-hp. 60 cycle 110 volt, units are equipped with a 5.3 amp. heater coil. Either Cutler-Hammer or Penn Controls are used. This applies to models 737 and 937 in the 1937 line, but other models will have the heater coil built into the motor.

The suction shut-off service valve on the compressor, which is ⅜-inch S.A.E., and the discharge shut-off service valve are screwed into the cylinder head at locations 20, Fig. 2. It is possible with this arrangement to remove the cylinder head without removing the service valves.

Fig. 9—Wiring Diagram

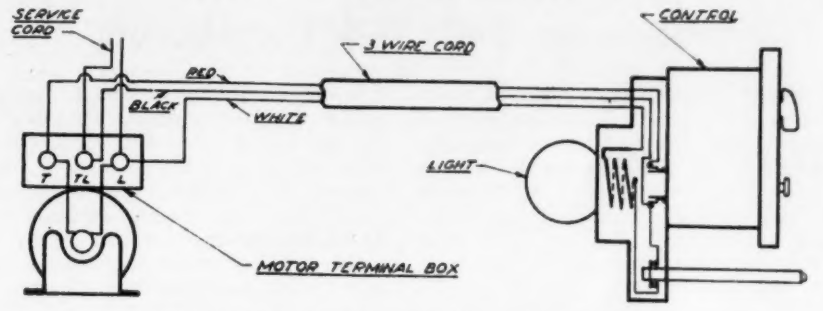

Fig. 9—Wiring diagram for interior light.

Fig. 11—Parts of Light Switch

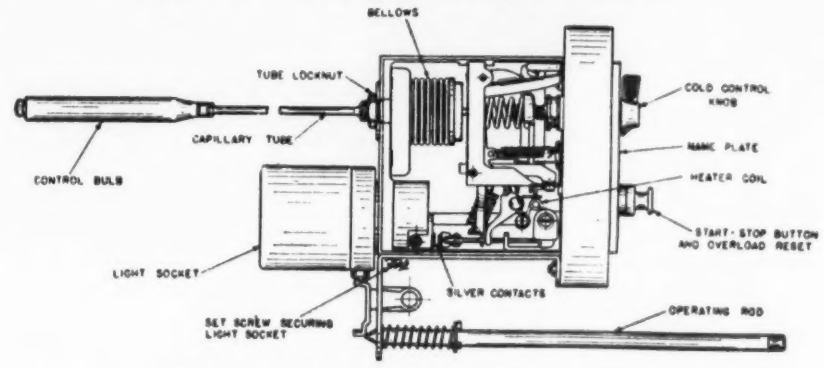

Fig. 11—Light switch mechanism and parts.

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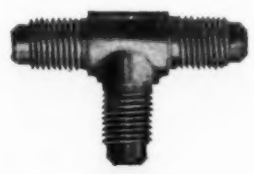

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Air Conditioning Needs Trained Men, Donovan Tells G-E Distributors

NEW YORK CITY—The increasingly vital need of the industry, if the public is to become and stay sold on air conditioning, is trained manpower, Manager J. J. Donovan of the General Electric air-conditioning department told the more than 200 distributors, dealers, and sales managers attending the company's three-day air-conditioning convention here recently.

General Electric has embarked on an educational program designed to supply G-E distributors with properly trained men, Mr. Donovan said. Arrangements have been made with technical schools for special courses on air-conditioning equipment manufacture, installation, and servicing, with the company's cooperation. This program will be expanded in the future, he stated.

Guest speakers the first day were Henry C. Meyer Jr., of Meyer, Strong, and Jones, consulting engineers; Carl M. Snyder, manager of the General Electric Home Bureau; and Robert Mason, editor of American Builder.

C. E. Wilson, vice president of General Electric in charge of appliance and merchandise sales, addressed the group at Hotel Ambassador in the evening, and Leland Smith, technical adviser to the Federal Housing Administration, discussed the possibilities in equipment sales for new homes selling for $5,000 and under.

Guest speakers on the second day included R. J. Rutherford, vice president of Worcester Gas and Electric Co., R. S. Agee, sales promotion manager of the Washington Gas Light Co., and T. K. Quinn, president of Maxon, Inc. H. D. Kelsey, design engineer of the G-E air-conditioning department, reviewed the products of the past five years and presented the new line.

A. C. Roy, manager of sales promotion, announced that 14 national magazines, a cooperative newspaper advertising campaign, direct mail, a new sales training program, and a tie-in with the G-E radio program, the "Hour of Charm," would be utilized to tell the story of G-E air conditioning during 1937.

A feature of the newspaper campaign will be dealer control of media, schedules, and size of insertions under the cooperative plan. Pocket film projectors will be supplied to dealers for salesmen's use in contacting prospects, while sound movies will be utilized at sales points.

Emphasis in the magazine field will be placed on publications featuring the home, architectural and equipment journals, and other general magazines, with a total circulation of approximately 3,500,000 readers.

Manufacturers Contribute to ASHVE Research Fund

NEW YORK CITY—Contributions by several manufacturers to the general research fund of the American Society of Heating & Ventilating Engineers have been reported by Society headquarters here.

Companies which have made either cash contributions or definite pledges of support include:

Aerofin Corp.; American Air Filter Co.; Barber-Colman Co.; Carrier Corp.; Chamberlin Metal Weatherstrip Co.; Fairbanks, Morse & Co.; Julien P. Friez & Sons Co.; Gilbert and Barker Mfg. Co.; Heating, Piping and Air Conditioning Contractors National Association; Hoffman Specialty Co.; Johnson Service Co.; Barnes and Jones; Grinnell Co.; P. H. MaGirl Foundry and Furnace Works; McDonnell & Miller; J. J. Nesbitt, Inc.; L. J. Wing Mfg. Co.; Pittsburgh Plate Glass Co.; Reynolds Corp.; Fitzgibbons Boiler Co.; and Torrington Mfg. Co.

Thermostatic Trap

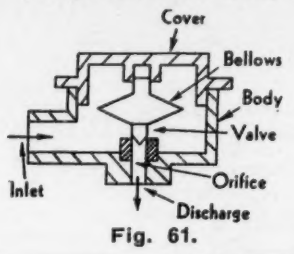

Fig. 61.

vision must be made to prevent freezing of the heating coil when the steam or hot water supply is shut off. This may be done by one of the following methods:

1. Provide a thermostat which will close outside air damper when temperatures entering the heating coil approach freezing.

2. Provide a shallow "tempering" coil in the outside air intake, and provide a thermostat which will turn on steam or hot water to the tempering coil when temperatures entering the heating coil approach freezing. The tempering coil should be of sufficient depth to prevent freezing temperature at the heating coil at the lowest outside temperatures, yet its depth should not be sufficient to cause overheating of the heated space with outside temperatures as high as 35° F.

3. Leave steam or hot water on main heating coil at all times, and obtain desired control of coil output by thermostatically operated by-pass damper.

With any of the above installations where the proportion of outside air is sufficient to cause air to be delivered into the heated space at lower than 60° when the room temperature is above 70°, and the room thermostat has cut the heating coil out of operation, a thermostat must be located in the air stream leaving the coil to prevent this air temperature from falling below 60°. This may be done by arranging this thermostat to partially close the fresh air damper, or to limit the opening (by the room thermostat) of the heating coil bypass damper, or the closing of the steam or hot water supply valve to the heating coil.

All of the above mentioned controls are available from any standard manufacturer of temperature control equipment.

Heating Specialties

Brief descriptions are given below of various heating specialties commonly used.

1. *Thermostatic Condensate Trap:* This type of trap is used between the steam and return systems for the vacuum or vapor heating system for allowing condensate and air to pass to the return piping, and preventing the passage of steam. This type of trap may be used either for serving the heating equipment itself, or for draining condensate from the ends or low points of steam piping, or the bottoms of risers, etc. This trap is made for handling quantities of condensate up to 750 lbs. per hour.

Fig. 61 shows a typical thermostatic trap. When the body is filled with condensate and/or air so that there is no steam surrounding the bellows, the volatile liquid within the bellows contracts, drawing the valve from its seat and allowing the steam pressure to force the condensate and air through the discharge.

When steam enters the body and surrounds the bellows, the volatile liquid expands, forcing the valve against the seat so that steam cannot pass. Special thermostatic traps are made for steam working pressure up to 30 lbs., and for high vacuum returns, but generally this type of trap is used only for low pressure heating service where the vacuum on the return side does not exceed ten inches of mercury.

Float Trap

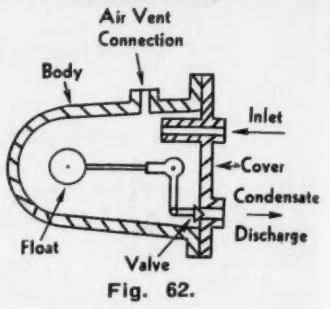

Fig. 62.

2. *Condensate Float Trap:* The float trap is used for draining the condensate from steam piping or equipment, usually where considerable capacity is required. Since this trap does not pass air, some means must be provided for relieving the system of air.

Fig. 62 shows a typical float trap. When the condensate level rises within the body of the trap, the resultant rise of the float opens the valve, allowing the steam pressure to force the condensate out through the discharge. Before the condensate falls to a level which would uncover the discharge and allow the escape of steam, the float closes the valve.

Since air connot escape through the discharge, it is necessary to vent the trap to open air through a thermostatic air valve in the case of the gravity or vapor system, or to vent

(Concluded on Page 23, Column 1)

Bucket Trap

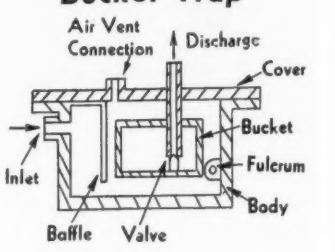

Fig. 63.

— AIR CONDITIONING MADE EASY —

Safety Controls Needed on Various Types of Heating Systems

SECTION NO. 7 (Continued)

HEATING

BY F. O. JORDAN

In addition to controls which are for the maintenance of comfort, controls must be used for safety, or for prevention of injury to equipment or to the building itself.

OIL BURNERS

In the case of the *oil burner,* it is necessary to provide the following safety features:

1. *Limit Control,* for stopping the burner operation when the steam pressure (in the case of the steam boiler), or the bonnet air temperature (in the case of the hot-air furnace), or the water temperature (in the case of the hot water boiler) rise to a predetermined level.

2. *A Stack Switch or Relay,* for making it impossible for the burner to operate or to start up again without being reset after one of the following occurs:

A. failure of oil supply
B. failure of ignition
C. failure of voltage

This control also acts as a starting relay for the room thermostat.

When the ignition is of the intermittent type, this control also cuts off the ignition when the flame is well established.

Some types of stack switch will allow operation of the oil burner after a failure without being reset, but only after the combustion chamber has sufficiently cooled to prevent an explosion.

3. *Low Water Cutout,* for stopping burner if the boiler water level falls below a certain predetermined level.

GAS BURNERS

In the case of the *Gas Burner,* the following safety features should be provided.

1. *Limit Control,* as described above for the Oil Burner.

2. *Thermostat,* for shutting off gas supply when pilot fails or is not burning.

3. *Low Water Cutout,* as described above for the Oil Burner.

STOKERS

In the case of the *Stoker,* the following safety features should be provided.

1. *Limit Control,* as described above for the Oil Burner.

2. *Thermostat,* for operating stoker sufficiently to prevent fire from going out when furnace temperature falls to a predetermined level, because of very short operating time due to light loads.

3. *Low Water Cutout,* as described above for the Oil Burner.

HAND-FIRED BOILER

For the *Hand-fired Boiler,* a limit control should be provided which will check the combustion rate when the bonnet temperature, steam pressure, or the hot water temperature (as the case may be) becomes too high.

All steam or hot water boilers must be provided with an appropriate pressure relief valve which will relieve the boiler pressure by opening the boiler to atmosphere, before the pressure reaches a dangerous level.

Steel steam boilers must be provided with a fusible plug which will melt and relieve the boiler pressure before the water level drops to a dangerously low level.

An *automatic. water. feeder.* may be provided as an additional safety feature for the low pressure heating boiler. This accessory prevents the boiler water level from falling below the desired level by automatically admitting water. Water feeders are available which also prevent the level from rising above the desired level, due to the return of entrained water from the system, by acting as an overflow.

PREVENTING FREEZING

In the case of installations where a hot water or steam heating coil is used on automatic control and where a proportion of outside air is passed through the coil, some pro-

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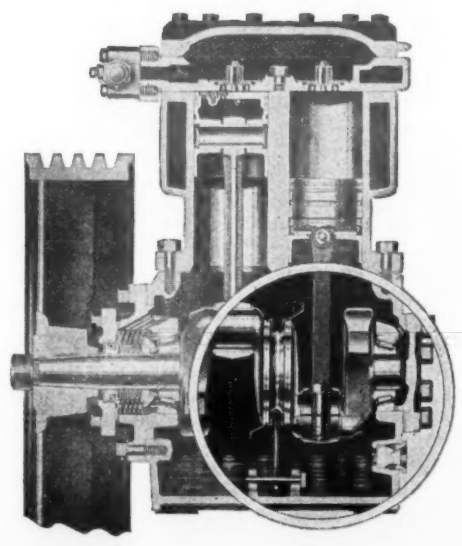
● The Curtis "Centro-Ring" Positive Pressure Oiling System is found only in the Curtis compressor. One simple moving part (a ring) picks up the oil and delivers it to the crank shaft. Centrifugal force distributes the oil under pressure through ducts to all points requiring lubrication. No intricate gear or plunger pump to get out of order — positive and controlled lubrication is assured at all times.



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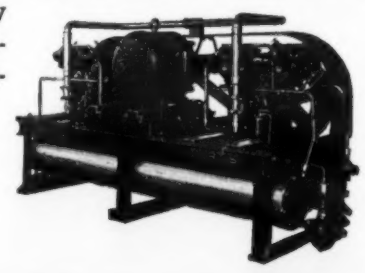

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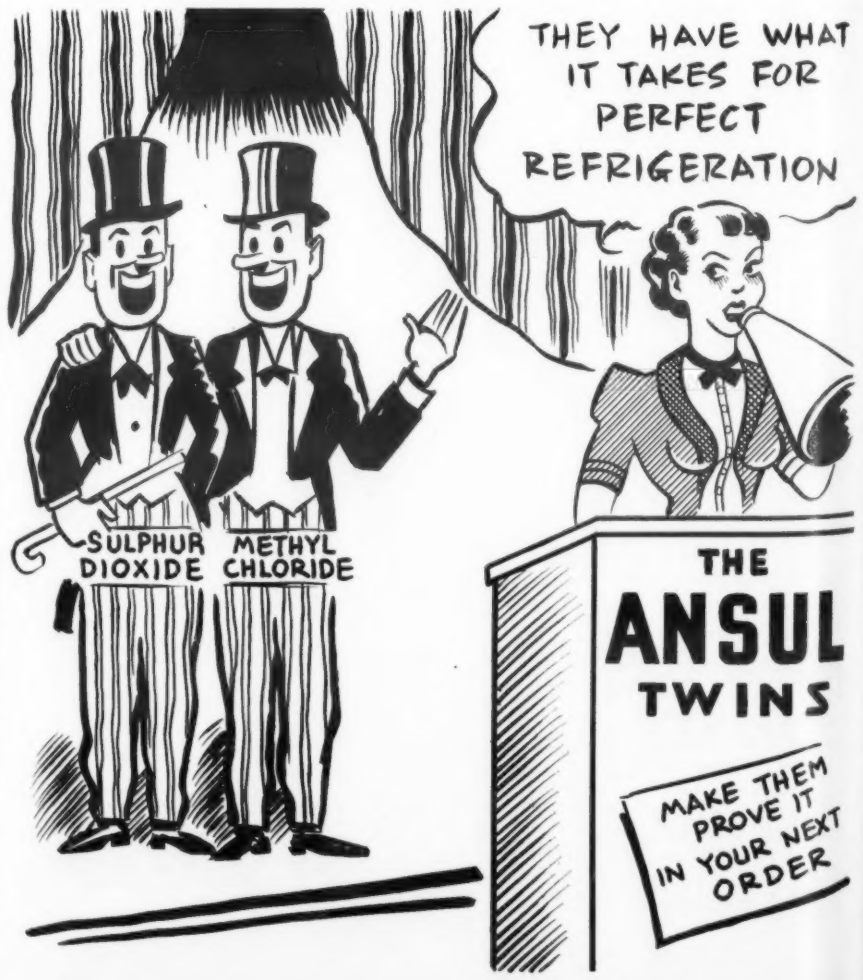
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Descriptions of Various Heating Specialties Commonly Used

(*Concluded from Page 22, Column 5*)

the trap through a thermostatic trap (described above) to the return system in the case of the vacuum or vapor system. With some models, the thermostatic by-pass is integral with the trap.

BUCKET TRAP

3. *Condensate Bucket Trap:* The condensate bucket trap is used for draining a condensate from steam piping or equipment, especially where large capacities are required, or where high pressures are used. However, bucket traps are made for all types of service. This trap is made in two styles, regular, and inverted.

Fig. 63 shows a regular bucket trap. With this trap, the body contains condensate at all times. When the condensate level rises above the brim of the bucket, the bucket fills and sinks, opening the valve and allowing the steam pressure to force the condensate through the discharge.

When the bucket is practically empty, its buoyancy causes it to rise and float above the surface of the condensate in the trap, closing the valve. This trap must be provided with an air vent, as described above for the float trap.

Fig. 64 shows a typical inverted bucket trap. With this trap, condensate and air enter the body under the inverted bucket. The thermostatic air vent remains open as long as air is present, so that the air is allowed to escape. When the air is discharged, steam comes in contact with bi-metallic thermostatic strip, causing it to bend and close the air vent.

The presence of steam under the bucket gives it sufficient buoyancy to make it rise and float in the condensate which fills the body of the trap at all times. As more condensate enters, less steam can exist under the bucket, so that the bucket eventually sinks, opening the valve and allowing the steam pressure to force the condensate out through the discharge.

As the condensate is discharged, more steam can enter the bucket, until it rises, closing the valve. This type of trap is available for all pressure and capacities. In some models, the air vent, as described above, is omitted.

RETURN TRAP

4. *Condensate Return Trap:* Fig. 65 shows a typical return trap. This trap is used for returning condensate to the low pressure heating boiler. As condensate returns from the return system, it passes check valve "A," but cannot pass check valve "B," because of boiler pressure on the other side of the check, so that it rises into the return trap, because of the higher water level in the wet return system.

With the float in the lower position, the air vent valve is open, so the air may escape as the condensate enters. When the float reaches an upper position, the air vent is closed and the steam valve is opened, allowing steam at boiler pressure to enter the trap body, so that the steam pressure is equalized on both sides of the trap, which in turn permits the condensate to flow from the trap into the boiler, due to the higher level of the trap. Condensate cannot flow back into the return, because of the check valve "A."

Fig. 66 shows a typical combination float and thermostatic air valve for use with the steam vapor system for venting air, but preventing the escape of steam or condensate.

Air is forced in through the inlet, and passes out through the vent. Upon the entrance of condensate, the float lifts, closing the valve. Upon the entrance of steam, the thermostatic element expands, closing the valve. The ball check prevents the entrance of air into the system when the system pressure is sub-atmospheric.

For the steam gravity system, the ball check is omitted. In some valves, the float is omitted. When the valve is used with the hot water system, the thermostatic bellows and the ball check are omitted.

PRESSURE VALVE

6. *The Pressure Regulating Valve:* The pressure regulating valve is used for reducing steam pressure to the pressure desired for the heating system, and for maintining that pressure, regardless of the heating load or the boiler pressure.

Fig. 67 shows a typical pressure regulating valve. In order to maintain the desired steam pressure in the low pressure main, at all loads, the valve must adjust itself to do the proper degree of throttling for each load. This action is accomplished in the following manner.

When the heating load is reduced, so that the pressure rises in the low pressure main, the increased pressure is transmitted through the control line and applied against the diaphragm so that the valve is closed, slightly reducing the pressure.

When the heating load is increased, so that the pressure in the low pressure heating main falls, the reduced pressure is transmitted through the control line to the diaphragm chamber, reducing the pressure against the diaphragm and allowing the weight to open the valve, as necessary to maintain the desired low pressure.

The pressure within the low pressure main may be regulated, as desired, by placing the weight at the proper point upon the lever arm.

The double disc valve as shown is frequently used, because of the balanced effect obtained due to the fact that one valve opens against the pressure, while the other valve opens with the pressure. Single disc valves are used also.

Many valves are "spring loaded," rather than "weight loaded" as shown by the diagram.

In many valves, the control line from the low pressure side does not operate the valve directly, but actuates a pilot valve only, which in turn regulates water pressure, compressed air pressure, or high pressure steam pressure against the diaphragm, so that the force which actually moves the valve and holds it in position is derived from one of these high pressure mediums. In this way, the diaphragm and diaphragm chamber may be reduced in size, and more positive control may be obtained, especially when very low steam pressures are desired in the heating main.

RELIEF VALVE

7. *Pressure Relief or Back Pressure Valves:* This type of accessory is used for permitting steam to escape when the pressure rises to a certain level, usually for the purpose of protecting piping or equipment. This valve is, in effect, merely a check valve which is held shut by a spring or weighted lever, except when the pressure rises above the setting of the valve.

8. *Strainers:* Suitable strainers should be provided at the inlets to drip traps, and at all traps if the steam is very dirty, as grit plugs orifices and is generally detrimental to operation.

Fig. 68 shows a common type of strainer.

WATER FEEDER

9. *Water Feeders:* The water feeder is used to maintain the proper water level in the low pressure boiler. Fig. 69 shows a typical water feeder. The feeder must be installed so that the level in the feeder chamber is the same as the water level in the boiler, and so that the discharge is below the boiler water line.

When the boiler water level falls the feeder float valve opens, allowing water to enter the boiler. When the boiler water level rises above the opening between the feeder and the overflow chambers, water from the boiler passes to the overflow chamber, raising the float and allowing water to escape.

In many feeders, the overflow feature is omitted, so that the accessory serves only as a feeder. Models are available which have an alarm which operates when the water reaches predetermined high or low levels.

Inverted Bucket Trap

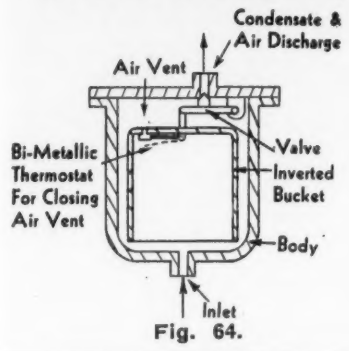

Fig. 64.

Return Trap

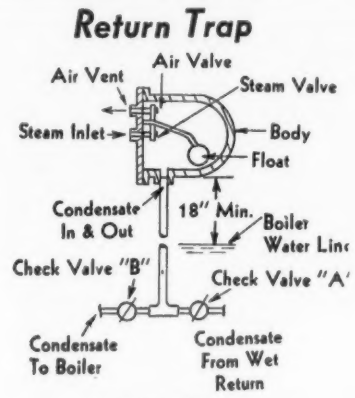

Fig. 65.

Air Valve

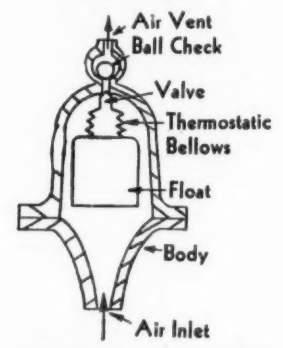

Fig. 66—Combination float and thermostatic air valve.

Pressure Regulator

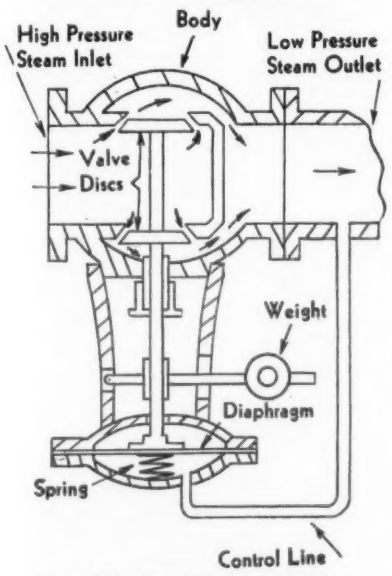

Fig. 67—Pressure-regulating valve.

Typical Strainer

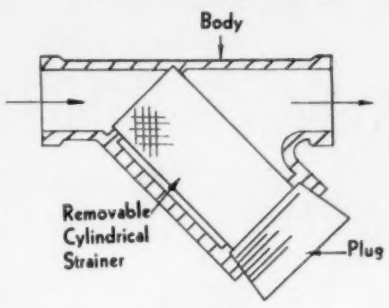

Fig. 68.

Water Feeder

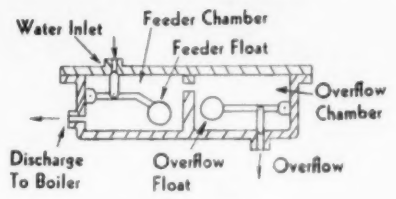

Fig. 69.

LONGER LIFE

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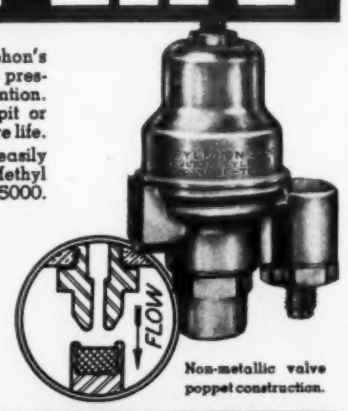
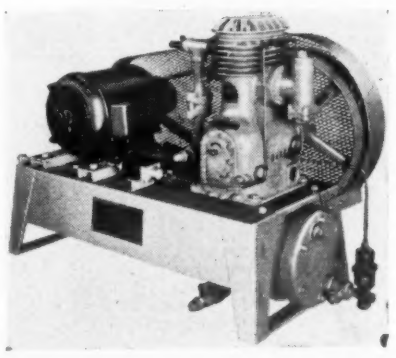
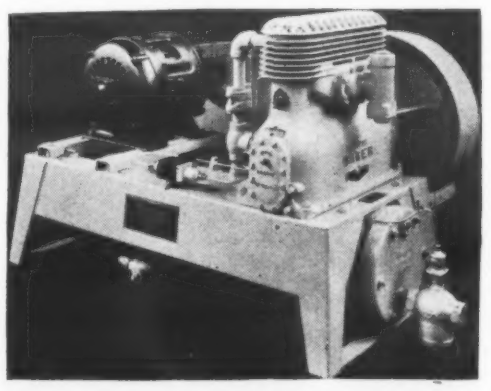


Non-metallic valve poppet construction.

Sylphon TRADE MARK

AUTOMATIC EXPANSION VALVE





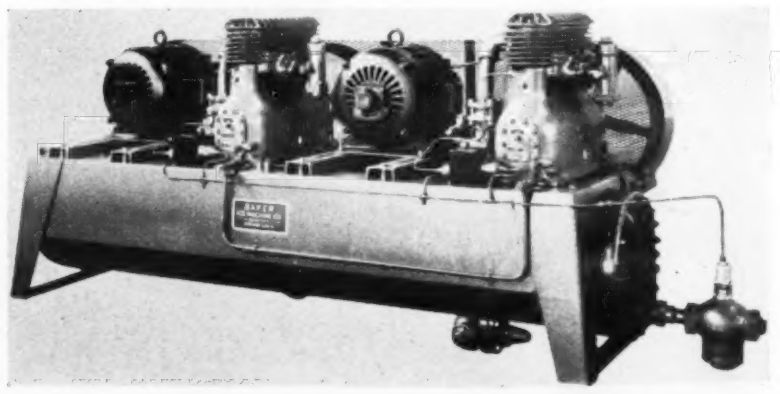
BAKER

ICE MACHINE CO., INC.
1506 Evans St., Omaha, Nebraska
Branch Factories: Fort Worth, Los Angeles, Seattle
Eastern Sales: New York Central Sales: Chicago

for BAKER distributors

It's in the air! Already Baker distributors report 1937 air conditioning sales pointing to a new high. With hot summer days just ahead Baker's complete line of air conditioning and refrigerating equipment assures these dealers of even bigger "weather profits" this year. Backed by more than 30 years of experience in developing and manufacturing mechanical cooling equipment, Baker offers full factory cooperation in sales and engineering problems.

Several excellent territories for dealers and distributors of Baker equipment are still open. Baker invites inquiries from interested, reliable contractors. Prompt attention and full information will be given to interested firms.



Baker features the most complete line of small and medium capacity units on the market, ranging from 1/4 to 100 H.P. for every variation in mechanical cooling requirements.

Authority on Mechanical Cooling for over 30 Years

Chicago—World Leader in Air Conditioning

More air-conditioning equipment has been installed in Chicago than any other city in the world.

Because of the large number of installations which have been made in the Chicago area, AIR CONDITIONING AND REFRIGERATION NEWS no longer finds it possible to publish a record of all the installations made to date in that city, as it has been doing in the past few weeks for other major cities. Only the installations made during 1936 are recorded in the following tabulation, showing horsepower, tonnage, and make.

For a record of all installations made **for all years through 1935,** see the Jan. 29, 1936, issue of the NEWS.

— AIR CONDITIONING SURVEYS —

Where Air Conditioning Was Installed in Chicago in 1936

Banks

Name and Address	Installation	Hp.	Tonnage
Federal Reserve, 230 S. LaSalle	Kroeschell	376	240
Mercantile Trust & Savings, 541 W. Jackson	Frigidaire (Galla-Spec.)	52½	45

Barber Shops

Appolo Barber Shop, 161 N. Clark	York (Wester-Camp.)	3¼	3
Dearborn Barber Shop, 112 N. Dearborn	York (Adv. Heat)	3¼	3
Reaper Barber Shop, 109 N. Clark	Reliance (Adv. Heat)	3¼	3

Beauty Shops

Blecker Beauty Shop, S. Homan (Sears)	York (Wester.-Camp.)	11	10
Cutex Manicure Salon, 135 S. LaSalle	Vilter	11½	8
Estelle Beauty Shop, 1505 N. Pulaski	Kelvinator (Witten.)	25	20

Brokers & Exchanges

Paul H. Davis & Co., 10 S. LaSalle	Elliott (Wendt & Crone)	39	100
Paul H. Davis & Co., 10 S. LaSalle	Norge (Wendt & Crone)	5	5
Paine Webber & Co., 209 S. LaSalle	Carrier (Air Comf.)	17	15
Shields & Co., 135 S. LaSalle	Carrier	2	0
Stein Brennan & Co., 11 S. LaSalle	Carrier (Air Comf.)	30	25
Sutro Bros., Inc., 134 S. LaSalle	Carrier (Air Comf.)	17	15

Civic Buildings

Museum of Science & Industry, 1801 E. 57th	Wendt & Crone	150	150

Clubs

Chicago Bar Assn., 29 S. LaSalle	York (Wester.-Camp.)	65	50
Midwest Athletic Club, 6. N. Hamlin	Aire-Rite	½	½
University Club, 76 E. Monroe	G-E (Baldwin)	22	20

Doctors & Dentists

Dr. M. H. Barker, 700 N. Michigan	Coolaire	½	½
Dr. Ralph Creviston, 2001 W. 51st	Westing. (Kroeschell)	½	½
Dr. K. F. Knudtson, 30 N. Michigan	Aire-Rite	½	½
Dr. Theodore Lawless, 4201 S. Parkway	York (Alter)	1	1
Dr. J. L. Nortel, 805 N. LeClaire	Frigidaire (Com. Edison)	1	1
Dr. William Rooks, 55 E. Washington	G-E	½	½
Dr. Maurice Rubel, 25 E. Washington	Ilg	½	½
Dr. Walter H. Silge, 4001 Lincoln	Frigidaire (Com. Edison)	1	1
Dr. J. W. Treacy, 6004 W. North	Frigidaire (Com. Edison)	½	½

Funeral Parlors

Gilbert H. Anderson, 5107 N. Clark	Air Devices	11	10
Drake & Son, 5200 N. Western	Howe	5	5
Hursen Undertaker, 2346 W. Madison	Carrier (Air Comf.)	22	20
Hursen Undertaker, 929 Belmont	Carrier (Air Comf.)	17	15
C. Kampp & Son, 318 N. Central	Westing. (Kroeschell)	30	25
Krauspe Undertaker, 3905 N. Lincoln	Ice-Premier	2½	..
Lain & Son, 316 W. 63rd	N. Y. Blower-Frick	40½	25
Linhart, 1643 W. 19th		8½	7½
McCready Funeral Home, 4506 Sheridan	Frigidaire (Boch)	3	3
Anton Pociask, 1335 W. Chicago	Westing.	3	3
Walter Pomierski, 1059 W. 32nd	Wacholz	8	5
Sheehy Chapel, 7653 S. Halstead	G-E Standard Air	8½	7½
Weinstein Bros., 1300 Devon	U. S. Air Cond.	12½	0

General Offices & Buildings

Acme Steel Co., 2840 S. Archer	Westing. (Kroeschell)	150	135
Allbright Nell Co., 5323 S. Western	G-E-Mehring & Hansen	25	20
American Airways, 4848 W. 63rd	Airtemp (Hoier)	1½	1½
American Airways, 5034 W. 63rd	Reliance-Baldwin	6	5
American H. & C. Club, 30 N. Dearborn	Ilg-E. N. Hansen	3	3
Armour & Co., 1355 W. 31st (Glue)	Vilter	235	200
Board of Trade Clearing Co., 141 W. Jackson	York (Wester-Camp.)	3¼	3

(Continued in Columns 4 and 5, this page)

BRIDGEPORT *knows* BELLOWS

Why are Bridgeport Bellows and Thermostat Assemblies the permanent solution of many trying design problems of the refrigeration and allied industries?

Because their acknowledged superior performance as flexible seals, packless glands, expansion chambers, pressure diaphragms, thermostat members, etc., is the result of their inherently correct metallurgy and mechanical design . . . a reflection of Bridgeport's intimate knowledge of Bellows' characteristics and their application possibilities.

This knowledge is at your disposal. Write for Bulletin—BR. Bridgeport Thermostat Co., Inc., Bridgeport, Conn.

Air Conditioning is Aid in Speeding Up Match Production

ST. LOUIS—Air conditioning has been installed in the new plant of the Cupples Mfg. Co. here, which is the only match factory to be constructed in America for several years.

The common match is an inexpensive object, and the manufacturing profit available per match approaches the infinitesimal. For any considerable profit to accrue from matchmaking a tremendous volume of matches must be made per time interval.

For this reason the modern match is made by expensive automatic machines which must operate continuously at great speed. Since such equipment is costly and since the product must be produced in such quantities, any factors tending to stop or interfere with the process becomes a very expensive thing and must be eliminated at all costs. Conversely, any factor which tends to speed up the process, insure continuous production, and maintain a high level of quality, must be well worth its price.

A MILLION AN HOUR

Match-making machines may have a nominal hourly capacity of as high as 1,000,000 matches per hour. Reduced to a three-shift production basis, the total exceeds 24 millions of matches for each working day.

Each match tip is composed of two substances, the duty of one substance being to create flame when the match is "struck," that of the other to support combustion until the stem ignites.

MUST BE DRIED RAPIDLY

In order to permit the required high rate of match production, the tip must be dried very rapidly. Tests and experience have proven that satisfactory results are obtained with an air dry bulb temperature of 75° F. and a relative humidity of 40%. These air conditions must be maintained throughout the entire year, regardless of outside weather conditions.

To design their new match-making plant and organize production, the Cupples company retained J. W. Weaver, a production engineer who has specialized in the production of matches.

The plant as constructed is now provided with three match-making machines, while provisions have been made for the future installation of three more. The present capacity of the plant is conservatively estimated at 60,000,000 matches per day, due allowance being made for contingencies.

CONDITIONS MAINTAINED

For conditioning this plant, an air-conditioning system has been installed for delivering 33,000 c.f.m. of air at 75° dry bulb temperature and 40% relative humidity.

Refrigeration equipment consists of two York 8-inch x 8-inch double-cylinder ammonia compressors, each driven by a 75-hp. motor, and provided with a 33-inch diameter by 16-foot shell and tube condenser, and a 20-inch diameter by 8-foot liquid receiver.

The air to be conditioned is passed through a steel pipe coil direct expansion evaporator unit where it is cooled and dehumidified.

REGENERATOR IS FEATURED

Featuring this installation is the "regenerator" or "heat exchanger." The regenerator consists of an air pre-cooling coil located at the entering air side of the main direct expansion air-conditioning coil mentioned above, and a "back-heating" coil which is located at the leaving air side of the air-conditioning coil. These pre-cooling and back-heating coils are joined together by means of suitable piping so that a closed water circuit results; a pump circulates the water through the circuit.

As the water passes through the back-heater coil, it warms the cooled and dehumidified air leaving the air-conditioning coil, and is itself cooled by the cool air stream. The cooled water then is circulated through the pre-cooler coil where it pre-cools the incoming air and is itself warmed ready to be passed through the back-heater coil once more.

Since back heating is necessary for raising the conditioned air to the

(Concluded on Page 25, Column 3)

Name and Address	Installation	Hp.	Tonnage
Bradshaw Praeger Co., 3248 E. 47th	Carrier	1	0
Brunswick Balke, 623 S. Wabash	Mills Novelty	7½	7½
Cameron Can Co., 240 N. Ashland	York (Wendt & Crone)	16½	15
Cherry-Burrell, 427 W. Randolph	Carrier	39	30
Chicago Curled Hair Co., 2301 S. Paulina	G-E (Adv. Heat)	3¾	3
Chicago Park District, 1225 Lief Erickson	Frick (Midwest)	8½	7½
Chicago Screw Co., 1026 S. Homan	Carrier-W. A. Pope	28	25
Commonwealth Edison Co., 72 W. Adams	Westing. (Kroeschell)	20	15
Commonwealth Edison Co., 72 W. Adams	Worth (Kroeschell)	125	80
Commonwealth Edison Co., 72 W. Adams	Frig. (Galla-Spec.)	11	10
Commonwealth Edison Co., 72 W. Adams	York	5½	5
Coyne Electrical School, 1701 W. Congress	G-E	½	½
Dearborn Chemical Co., 1029 W. 35th	Frick (Midwest)	3½	3
E. L. Essley Machine Co., 825 Rees	Westing. (Kroeschell)	8½	7½
Fireman's Fund Indemnity, 175 W. Jackson	York (Mehring & Hansen)	45	30
Fruit Auction Sales, 1421 S. Solon	Norge (Sampson)	1	1
General Machine & Mfg. Co., 2634 N. Keeler	Carbondale (Acme)	6½	5
Grasselli Chemical Co., 2101 Canalport	York (Wester.-Camp.)	23½	20
Greenebaum Tanning Co., 3057 N. Rockwell	Baker (Burge)	17	15
Harrer Studio, 155 E. Superior	Servel (Premier)	1½	1½
Hoffman-Stafford Tanning Co., 1001 W. Division	York (Adv. Heating)	3¾	3
International Register Co., 15 S. Throop	Frigidaire	11	10
Lloyd Thomas, 4411 Ravenswood	Norge (Beamon)	3½	3
Material Service Corp., 33 N. LaSalle	York (Alter)	1¾	1¾
James McCabe, 7900 S. Ashland		5	5
McKesson-Fuller-Morris, 540 W. Randolph	Frigidaire	3	3
Metro-Goldwyn-Mayer, 1327 S. Wabash	Airtemp (Adv. Heating)	20½	18
A. C. Nielsen Co., Inc., 2101 W. Howard	Westing. (Kroeschell)	40	40
O'Brien Bros., Inc., 4220 Belmont	G-E-General Heat.	11½	10
Peoples Gas, Light & Coke Co., 122 S. Michigan	Frick (Mehring & Hansen)	10	10
Pheoll Mfg. Co., 5700 W. Roosevelt	Mehring & Hansen-Carrier	80	80
Pritzker & Pritzker, 134 N. LaSalle	Westing. (Kroeschell)	26	20
Refrigeration & Air Cond. Inst., 2150 W. Lawrence	York (Wester.-Camp.)	2	2
Refrigeration & Air Cond. Inst., 2150 W. Lawrence	Westing.-Carrier-Kroes.	9	7½
Reliance Mfg. Co., 210 W. Monroe	Vilter	65	60
Rogers, Woodson, Rogers, 122 S. Michigan	Carrier (Air Comf.)	8½	7½
Rotary Club, Sherman Hotel	Westing. (Kroeschell)	12	10
Silver-Claussen-Hirsch, 208 S. LaSalle	York (Alter)	3	3
Sonneschien-Berkson Co., 77 W. Washington	Carrier (Adv. Heat.)	23	20
Standard Oil Co., 910 S. Michigan	Frig. (Keystone)	36½	32
Stanis Co., 1307 Milwaukee	Coolaire (5 units)	4¾	4¾
Steamfitters Protective Assn., 408 S. Leavitt	Westing. (Kroeschell)	3	3
Tribune Tower, 435 N. Michigan	Westing. (Kroeschell)	4¼	3½
United Autographic Co., 5000 S. California	Carrier (Air Comf.)	5¾	5
Underwriters Laboratory, 207 E. Ohio	G-E-Gallagher	5½	5
Vapor Car Heating, 80 E. Jackson	Carrier (Johnson)	18	15
White Cap Co., 1806 N. Central	Frigidaire	12	10
Williams Oil-O-Matic, 641 N. Michigan	Williams	1¾	7

Hospitals

Henrotin, 939 N. LaSalle	Frigidaire	1	1
Passavant, 303 E. Superior	G-E (2)	1	1
Presbyterian, 1753 W. Congress	Coolaire	½	½

Hotels

Drake, 140 E. Walton	Assembled	25	15
Harding, 17 N. Clark	Narowitz	7	0
Palmer House, 17 E. Monroe	Thermal Units (Air Dev.)	12½	12½
Stevens, S. Michigan	Thermal Units (Air Dev.)	20	18

Industrial Applications

Case Moodey Pie Co., 1807 W. Walnut	Carrier	50½	30
Andes Candies Co., 355 N. Central Park	York (Wester.-Camp.)	10	10
Curtis Candy Co., 337 E. Illinois	Wittenmeier	150	85
Curtis Candy Co., 259 E. Illinois	Carrier (Used)	90	75
DeMet's, 312 W. Madison, Candy Co.	York (Wester.-Camp)	3	3
Walter H. Johnson's, 341 W. Superior, Candy Co.	Vilter	92½	80
Martha Washington, 3823 Broadway, Candy Co.	York (Wester.-Camp.)	10	10
McLean & Son, 350 W. Ontario, Candy Co.	Carrier (Air Comf.)	7¾	7½
Nutrine Candy Co., 419 W. Erie	York (Adv. Heating)	8½	7½
Peck-O-Fun, 1248 W. 37th, Candy Co.	Carbondale-Acme	20	20
Thinshell Products, 1523 W. 37th, Candy Co.	Carbondale-Acme	40	40
Vogt Candy Co., 1933 S. Halstead	Carbondale-Acme	10	10
Charles Bruning Co., Inc., 445 Plymouth Court, Printing	Carrier (Air Comf.)	¾	¾
Wessel Co., 458 E. 30th, Printing	Carrier	20	15
Arvey Corp., 3462 N. Kimball	Carrier	65½	50
Automatic Electric Co., 1001 W. Van Buren	Curtis (Nat'l-Korrect.)	3½	3
Bauer & Black, 45 W. 25th	York (Moffett)	35½	30
Empire Packing Co., 3840 S. Emerald	Vilter	35½	30
Fortune Bros., Brewing Co., 725 W. Van Buren	Gerschwin-Air Comf.	68	60
Gievert Film Co., 140 E. Illinois	Coolaire	½	½
Griswold Walker-Bateman, 1524 S. Peoria	Kelv. (Witten.)	10½	10
Laboratory of Vitamin, 1411 E. 60th	Airtemp-Hoier	3½	3
Standard Galvanizing Co., 2619 W. Van Buren	Westing. (Kroeschell)	8½	8
Wilson & Co., 901 N. Michigan, Dog Sign	G-E	5½	5
Wilson Bros., 528 Wells	Carrier (Air Comf.)	8	7½
Wilson Bros., 528 Wells	Carrier (Air Comf.)	5	0
Wrigley Bldg., 400 N. Michigan	Inger (Kroschell)	520	340

Private Offices

Aire Rite Corp., 332 S. Michigan	Aire Rite	½	½
American Inst. of Banking, 1135 Fullerton	Frigidaire	2½	2
American Conservation Co., 307 N. Michigan	Coolaire	½	½
Lester Armour, 135 S. LaSalle	Westing. (Kroeschell)	¼	¼
P. D. Armour, 135 S. LaSalle	Westing. (Kroeschell)	¼	¼
Babcock Rushton, 333 N. Michigan	Kelvinator (Com. Edison)	1½	1½
George A. Bates, 135 S. LaSalle	Westing. (Kroes.-Com. Ed.)	1	1
I. S. Berlin, 522 S. Clinton	Thermal Units	1½	1½
Bills Realty, 134 S. LaSalle	General Electric	1	1
J. E. Bistor, 612 N. Michigan	Aire-Rite	½	½
P. S. Blum & Co., 505 W. Chicago	York (Alter)	1	1
Blyth & Co., 135 S. LaSalle	Frigidaire (Com. Edison)	¾	¾
Brennan Refining Co., 23 E. Jackson	Thermal Units (Air Dev.)	1½	1½
Britton I. Budd, 72 W. Adams	Frigidaire (Com. Edison)	1½	1½
Mr. Bulger, 212 S. State	Frigidaire (Com. Edison)	1	¾
Burton Mfg. Co., 605 N. Michigan	General Electric	1	1
M. H. Callner, 33 N. LaSalle	York (Alter)	1	1
Canada Casing Co., 825 W. 47th	York (Com. Edison)	1	1
Chicago Mail Order Co., 501 S. Paulina	Westing. (Kroeschell) (4)	3¼	3
Chicago Mill & Lumber Co., 111 W. Washington	General Electric	1	1
Commerce Clearing House, 205 W. Monroe	York (Com. Edison)	1	1
Consumers Sanitary Stores, 8235 Vincennes	Ilg	½	½
Edward A. Cudahy, 221 N. LaSalle	General Electric	2	2
Daily Times, 211 W. Wacker	Frigidaire (2)	1½	1½

(Continued on page 25, column 1)

TAG *Snapon Controllers* FOR REPLACEMENT *profits*

For Domestic Refrigerator, Water Cooler and miscellaneous applications, TAG Snapon Controllers fit your service jobs perfectly and profitably for you.

Once adjusted, they positively retain their temperature setting. Once set, the mechanism is locked against creeping. Send for the new 1937 TAG Snapon Controller Catalog No. 1136-25 . . . it contains other test equipment for refrigerator service that you should know about . . . Ask your jobber about TAG Snapon Controllers.

C. J. TAGLIABUE MFG. CO.
Park & Nostrand Aves.
Brooklyn, N. Y.

Send for CATALOG

Gentlemen: Please send me a copy of the new 1937 TAG Snapon Controller Catalog No. 1136-25.
Name.....
Address.....
City & State.....

Chicago 1936 Installations (Cont.)

Name and Address	Installation	Hp.	Tonnage
A. G. DeClercq, 72 W. Adams	York (Com. Edison)	2	2
O'Hare Dennis, 6230 S. Ashland	General Electric	½	½
C. A. Dostal, 20 N. Wacker	Westing. (Kroeschell)	1½	1
Exhibit Supply, 4222 W. Lake	Frigidaire (Com. Edison)	¾	¾
L. A. Ferguson, Jr., 72 W. Adams	York (Com. Edison)	1	1
First Appraisal Co., 330 S. Wells	Aire-Rite	½	½
First National Bank, 38 S. Dearborn	General Electric	3½	3
H. A. Friedlich, 231 S. LaSalle	Kelvinator (Com. Edison)	1	1
General Electric X-Ray, 230 S. Damen	General Electric	1	1
H. W. Gossard Co., 108 E. Ohio	Westing. (Kroeschell)	3½	3½
Great Lakes Mortgage Co., 184 W. Lake	Frigidaire (Com. Edison)	¾	¾
Dwight Green, 231 S. LaSalle	Frigidaire	½	½
Otto Gressen, 72 W. Adams	General Electric	2	2
F. H. Halvorsen Co., 3145 W. 63rd	General Electric	½	½
Edward K. Hardy, 6 N. Michigan	Frigidaire (Com. Edison)	1	1
Homer Hartz, 2 S. Michigan	Frigidaire (Com. Edison)	¾	¾
Julius Hecht, 72 W. Adams	York	1	1
Hibshman, 105 W. Adams	York (Alter)	¾	¾
Household Finance Corp., 915 N. Michigan	York (Com. Edison)	2	2
Independent Pneumatic, 600 W. Jackson	York (Alter)	2	2
Inland Press, 328 S. Jefferson	Coolaire	½	½
S. Insull, Jr., 72 W. Adams	Carrier (Com. Edison)	1	1
International Union, 332 S. LaSalle	York (Alter)	1	1
Kadet Kruger & Co., 216 W. Adams	Frigidaire (Com. Edison)	¾	¾
Jack Keeskin, 1453 Washburne	Ilg (Bunge)	½	½
Kelly Richardson, 135 S. LaSalle	York (Com. Edison)	1	1
Kroger Grocery-Bakery, 8235 S. Vincennes	Frigidaire	¾	¾
Lanteen Medical Lab., 900 N. Franklin	Brunner (Baldwin)	2	2
J. J. Lipp, 323 W. Polk	Airgard	½	½
McCormick Estate, 332 S. Michigan	Aire-Rite	½	½
James O. McKinsey, 222 N. Bank	Carrier (Air Comf.)	¾	¾
Meinrath Brokerage, 1 N. LaSalle	York (Alter) (4)	3	3
B. F. Mintern, 231 S. LaSalle	Therm. Units (Air Dev.) (2)	1	1
M. L. Typesetting & Elec., 4001 Ravenswood	General Electric	½	½
Morris Paper Mills, 123 S. LaSalle	Ilg	1½	1½
Moses, Kennedy, Stein, 231 S. LaSalle	York (Alter)	1	1
J. K. Mosser & Co., 173 N. Franklin	York (Wester-Camp.)	2¼	2
National Bond & Investment Co., 160 N. LaSalle	Ilg (Wendt & Crone)	½	½
National City Lines, 1157 S. Wabash	Frigidaire	1	1
National Tea Co., 1000 Crosby	General Electric	3	3
Old Republic Cr. Ins., 221 N. LaSalle	General Electric	½	½
C. H. Olmstead, 720 N. Michigan	York (Com. Edison)	¾	¾
Dr. O. S. Ormsby, 25 E. Washington	York (Com. Edison)	¾	¾
Albert Pack, 33 S. Clark	Airtemp	2½	2
Pittsfield Bldg., Office, 55 E. Washington	Aire-Rite	½	½
R. H. Quarry, 35 E. Wacker	Frigidaire	1	1
Radio Artists Assn., 32 W. Randolph	Coolaire	½	½
Radio Guide, Inc., 731 S. Plymouth	Frick (B. Offen)	6	5
Realty Mortgage Co., 3115 Logan	General Electric	½	½
F. B. C. Redington, 112 S. Sangamon	Westing. (Kroeschell)	1½	1½
Republican National Comm., 80 E. Jackson	Frigidaire (3)	3	3
Guy Richardson, 231 S. LaSalle	York (Com. Edison)	2	2
Rotary International, 35 E. Wacker	Frigidaire (Galla-Spec.)	5½	5
Morris B. Sachs, 6638 S. Halsted	York (Alter)	1	1
Schyler, Weinfeld, Hen, 231 S. LaSalle	Norge-Sampson	1	1
Scientific Oil Co., 1637 S. Kilbourn	Frigidaire (Com. Edison)	½	½
E. O. Sessions, 120 S. LaSalle	Thermal Units (Air Dev.)	½	½
Standard Pharmacal, 847 W. Jackson	Frigidaire (Com. Edison)	1	1
Sundberg Co., 615 W. 79th	Frigidaire	1	1
Utilities Stock Transfer, 72 W. Adams	Frigidaire (Com. Edison)	1	1
Weinress & Co., 231 S. LaSalle	York (Alter)	1	1
Whitney & Ford, 4317 S. Western	Westing. (Kroeschell)	1½	1½
Wetzig Mfg. Co., 2600 W. Fletcher	Frigidaire (Com. Edison)	1	¾
Wilson & McIlvaine, 135 S. LaSalle	York	1	1
Winston, Strawn & Shaw, 38 S. Dearborn	Carrier (Com. Edison)	¾	¾
John F. Wohlgmuth, 157 W. Jackson	Ilg	½	½

Residences

Louis Barker, 10036 Longwood	Frigidaire	½	½
Dr. M. H. Barker, 222 Illinois	Coolaire	½	½
A. Bauer, 5940 South Shore	York (Alter)	1	1
Richard Cammon, 2150 N. Lincoln Park West	Westing. (Kroes.-Com. Ed.)	½	½
Chicago American Home, 10620 S. Irving	G-E (Johnson)	1½	1½
Alfred Cowles, 1130 Lake Shore	Campbell	1	½
A. S. Cox, 850 Lake Shore	Frigidaire	½	½
John Cuneo, 3300 Lake Shore	Frigidaire	1	1
Des Isles, 1648 E. 50th	General Electric	½	½
Louis Donn, 6930 South Shore	Frigidaire	½	½
R. C. Farquhar, 6901 S. Oglesby	Frigidaire	½	½
S. C. Fish, 5000 East End	Frigidaire	½	½
Harold Green, 5525 Hyde Park	Frigidaire	½	½
Ed. K. Grossman, 1642 Hyde Park	York (Alter)	1	1
J. Hansen, 5500 W. Thomas	Frigidaire (Com. Edison)	½	½
B. E. Henderson, 233 E. Walton	Westing. (Kroeschell)	1	1
Dr. J. S. Hoffman, 3800 Lake Shore	York (Alter)	¾	¾
Mr. Holmes, 9414 Bishop	Ilg	½	½
Mrs. F. K. Hoover, 4841 Woodlawn	York	1½	1½
Ira Isaacson, 5327 N. Kimball	Frigidaire (Com. Edison)	½	½
Peter Kass, 10419 S. Leavitt	Frigidaire	½	½
Dr. Ivan King, 5539 S. Cornell	Aire-Rite	½	½
Dr. Lewin, Standard Club	Carrier (Air Comf.)	1½	1½
E. R. Lindberg, 232 E. Walton	Frigidaire	½	½
H. S. Magill, 1642 E. 56th	Carrier (Com. Edison)	¾	¾
Robert McDougal, 4804 Woodlawn	Kelvinator (Com. Edison)	½	½
J. P. Mentzer, 4720 Greenwood	Frigidaire (Com. Edison)	½	½
Carl Meyer, 2430 Lakeview	York (Alter)	¾	¾
Karl Milar, 10334 S. Leavitt	Lipman (Milar)	1½	1½
Our Lady of Grace Rectory, 2455 N. Hamlin	General Electric	2	2
Dr. Adolph Paulson, 2938 W. Diversey	Frigidaire (Com. Edison)	¾	¾
Arthur Richter, 9126 S. Winchester	Westing. (Kroes.-Com. Ed.)	½	½
Mrs. Edna Robinson, 4940 East End	Frigidaire (Com. Edison)	¾	¾
Mr. Rosenthal, 5540 S. Shore	York (Com. Edison)	1	1
Henry Schoenstadt, 1443 Hyde Park	York (Alter)	1	1
Ralph M. Shaw, 1427 N. State Parkway	Carrier (Com. Edison)	1½	1½
S. N. Shure, 1327 Lunt	Westinghouse	½	½
William Spiegel, 307 S. Dearborn	Kelvinator (Wittenmeier)	½	½
S. M. Stien, 5490 S. Shore	York (Alter)	¾	¾

(Continued in columns 4 and 5, this page)

Pre-Cooling Cuts Load in Factory

(*Concluded from Page 24, Column 3*)

required temperature after its temperature has been reduced by the cooling necessarily attendant upon its being dehumidified by the cold direct expansion air-conditioning coil, the back-heater coil of the closed regenerator circuit described above effects a saving in the quantity of steam which otherwise would be required for back heating the air.

The pre-cooling effect upon the incoming air of the cooled water in the regenerator circuit results in a considerable reduction in the refrigeration load upon the air-conditioning equipment. This saving is claimed to be in the neighborhood of 50 tons of refrigeration.

In addition to the above back-heating coil, a steam heated back heater also is provided for use when necessary for properly regulating the temperature of the air supply to the match-making equipment.

York to Air Condition Nine Theaters for Warner Bros.

YORK, Pa.—York Ice Machinery Corp. has received an order from Warner Bros. for the air conditioning of nine theaters, according to an announcement by S. E. Lauer, vice president and general sales manager of the company.

The nine theaters are located in Chicago, Wilmington, Del., and York. A total of 680 tons of "Freon 12" refrigeration is required for these theaters, which have a combined seating capacity of 12,650.

Chicago 1936 Installations (Cont.)

Name and Address	Installation	Hp.	Tonnage
C. F. Stephenson, 6523 Woodlawn	Ilg	½	½
Dr. S. Strauss, 5490 S. Shore	York (Alter)	¾	¾
Ernest Toy, 10146 S. Wood	Trane (B. & M.)	3½	3
A. Vignola, 4926 N. Albany	Frigidaire	½	½
C. R. Walgren, 8910 S. Hamilton	Assembled	4	3
Franklin Wallis, 2301 Berwyn	General Electric	½	½
Herbert E. Williams, 4559 Ellis	Thermal Units (Air Dev.)	½	½
Catherine Wilson, 4128 Washington	General Electric	½	½
Philip Wrigley, 2466 Lakeview	Westing. (Kroeschell)	½	½
Rev. John Zivierschowski, 743 N. Armour	G-E (Ill. Heating)	1½	1½

Restaurants

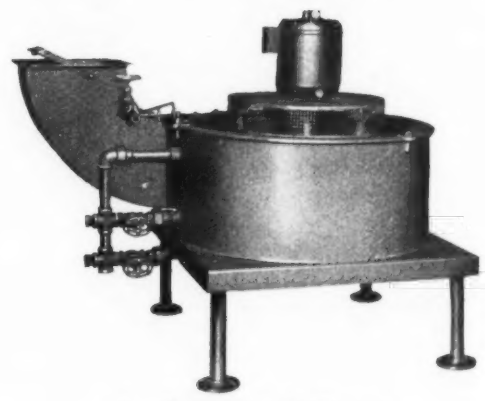
Al's Cafe, 1623 N. California	U. S. Air Cond.	8	0
Anne's Millstone Tavern, 1210 E. 63rd	U. S. Air Cond.	20	0
B/G Sandwich Shop, 174 W. Randolph	Air Comf. (Carrier)	17	15
B/G Sandwich Shop, 77 N. Jackson	York.-West.-Camp.	11½	10
B/G Sandwich Shop, 134 N. Dearborn	Carrier (Air Comf.)	16½	15
B/G Sandwich Shop, Dearborn Div.	Carrier (Air Comf.)	17	15
Beacon Restaurant, 119 N. Wacker	G-E (Mehring & Hansen)	22	20
Beverly Club, 8045 S. Ashland	M & E (Higler)	27¾	25
Beverly Club, 8045 S. Ashland (additional)	M & E (Higler)	10	10
Block's Restaurant, 1231 S. Michigan	Frigidaire	8¼	7½
Brass Rail, 52 W. Randolph	Reliance (Baldwin)	5½	5
Carder's Restaurant, 116 N. Dearborn	Carrier	46	40
Chez Paree, 160 N. Fairbanks	Wittenmeier	100	100
Chicago Radio Club, 433 N. Wells	Mills Novelty	9½	7½
Clover Bar, 172 N. Clark	Frick (Midwest)	11	10
Colony Club, 744 Rush	York-West.-Camp.	16½	15
Croydon Grill, 616 N. Rush	Brunner (Baldwin)	17	15
DeMet's, 105 W. Adams	York	20½	20
DeMet's, 910 S. Michigan	York-West.-Camp.	8½	7½
DeMet's, 208 S. LaSalle	Servel (Hanley)	11½	10
Eddie's Restaurant, 5902 S. Wentworth	U. S. Air Cond.	8	0
Edgewater Beach Hotel, 5345 Sheridan	Curtis (Natl. Korectaire)	67½	60
Ehrlich's Restaurant, 5236 Sheridan	G-E (Adv. Heat.)	17	15
Eitel Restaurant, 500 W. Madison	General Electric	60	50
Gee Tee Restaurant, 100 E. Ohio	G-E (Mehring & Hansen)	23	20
Goldberg Restaurant, 3400 Lawrence	G-E (Heating Systems)	11½	10
Golden Spot Tavern, 1116 Leland	Westing. (Kroeschell)	16	15
Harding's Restaurant, 208 W. Washington	Kroeschell	4	30
Harry's Wonder Bar, 9 E. 79th	M & E (Higler)	10½	10
Harrison's Restaurant, Railway Exchange	Westing. (Kroeschell)	27	25
Hartman's Grill, 11 E. Adams	U. S. Air Cond.	3	0
Hi-Hat Restaurant, 871 N. Rush	G-E (Davis Constr.)	1 6	15
Hoe Kow Restaurant, 153 E. Ohio	Frick (Midwest)	22	20
Hoe-Sai-Gai Restaurant, 85 W. Randolph	G-E (Baldwin)	17	15
Hoe-Sai-Gai Restaurant, 85 W. Randolph	Reliance (Baldwin)	16½	15
Huyler's Restaurant, 919 N. Michigan	Westing. (Kroeschell)	14½	45
Inglish Restaurant, 1103 Granville	Ilg (Hansen)	5¼	5
Insurance Exchange Tea Room, 175 W. Jackson	Westing. (Kroeschell)	16	12

(Concluded on page 26, column 4)

THE G-R Hydro-Cyclonic CONDENSER

Cuts Water Costs 95%

With water rates constantly rising, and the increased use of water for air conditioning and commercial refrigeration causing serious water shortages, a more efficient condenser became a necessity. To solve this problem, G-R research engineers developed an entirely new and revolutionary type—the **Hydro-Cyclonic** Condenser. One that enables water-cooled refrigerating machines to operate at one-twentieth the cost for water formerly required by condensers.



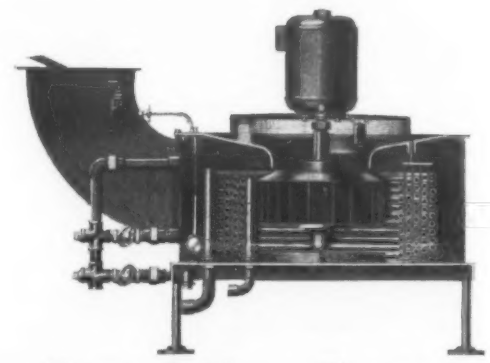
A Size and Type for Every Need

Simple in Construction

The simplicity of its construction and the quietness and efficiency of its operation obsoletes previous types of condensers. The use of only one motor, to operate the water lift and fan, eliminates the need of a pump, with its usual bearing and packing box troubles. The **Hydro-Cyclonic** Condenser saves space and expense by eliminating the necessity for cooling towers.

Easily Cleaned

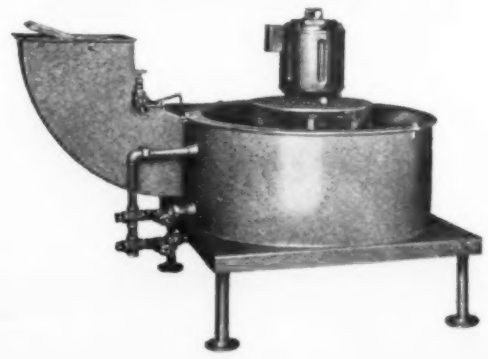
The circular tank has been designed to permit filling with water, submerging the coil for easy cleaning. The adjustable float, water supply and drain gate valves are arranged so they can be cleaned without removing fittings.



Sectional View—Showing Hydro-Cyclonic Construction

Write for Information

The **Hydro-Cyclonic** Condenser provides you with an opportunity to make additional sales to commercial refrigeration and air conditioning users—and to make more attractive propositions to prospects. In the G-R line of **Hydro-Cyclonic** Condensers, there is a size and type designed to operate efficiently in connection with most refrigerating machines installed on commercial or air conditioning applications. Investigate this new field for G-R sales, today!



GENERAL REFRIGERATION SALES COMPANY

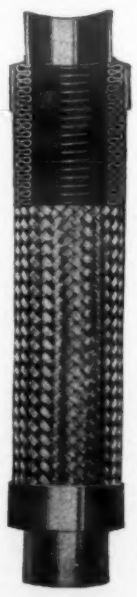
Dept. CF-2, Beloit, Wisconsin, U.S.A.

REX-WELD "Super-Service" VIBRATION ABSORBERS

for Air-Conditioning and Refrigeration Machinery

● Here's the ideal solution to the compressor noise problem! Installed in the suction and discharge lines, these Rex-Weld Flexible Metal Tubing Units effectively dampen the vibration and put an end to the annoying hammering—surely, safely and economically . . . Produced by an exclusive patented process which forms the flexible tubing corrugations without weakening the special, non-porous, non-crystallizing bronze alloy. Supplied complete with capped ends ready for sweating onto standard water tubing.

Write for Bulletin RW-4 and Data Sheet. Send us your specifications for prices.



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(Formerly Chicago Tubing and Braiding Company—Est. 1902)
Maywood, Illinois (Chicago Suburb)

— BUYER'S GUIDE —

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Model 7

Peerless Thermal Expansion Valve

Simplicity of construction due to the elimination of many moving parts makes this valve easy to install, sensitive in operation, and assures long life. Positive closing is obtained through the use of a ball type seat composed of Monel metal bushing and stainless steel ball and spring. Bellows and their attendant leakage are eliminated, removing any necessity for replacing the thermal element. Moisture cannot enter the hermetically sealed thermal chamber to cause erratic valve feeding.

The Thermal element, integral with the valve cover, contains a semi-liquid charge. Thus, control must always reside in the bulb even though the valve body is at a lower temperature than the bulb.

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The KOCH ECON-O-CASE
The Newest KOCH PRODUCT
CORKBOARD INSULATION
ALL-STEEL CONSTRUCTION
Built for SERVICE Priced to SELL
TRIPLE GLAZING-RUBBER DOORS
DOUBLE DUTY-6½, 8 and 10 ft. LONG

In addition to standard products, Koch now offers the Econ-O-Case, selling at the very lowest price level, and worthy of the Koch name in every respect. This new display case, sold only through distributors, opens a vast new market for Koch equipment. Write for details.

Economical IN COST
Economical IN OPERATION
WRITE TODAY FOR PROPOSITION

KOCH REFRIGERATORS
North Kansas City, Missouri

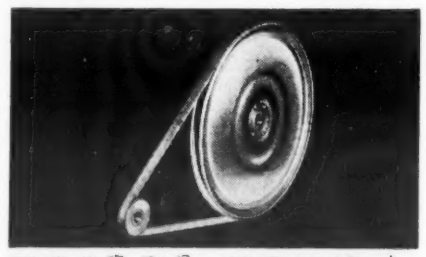
LEADING MAKERS OF REFRIGERATING AND AIR CONDITIONING EQUIPMENT STANDARDIZE ON

Dayton V-BELTS

● Because of their outstanding advantages Dayton V-Belts have been used as original equipment on leading makes of air conditioning equipment, electric refrigerators, washing machines and other appliances for many years.

Dayton V-Belts are the logical choice because they provide silent, dependable transmission—because their powerful grip prevents slippage—because they run smoothly without weaving, twisting or vibrating.

A nearby distributor carries a complete stock of Dayton V-Belts at all times and can quickly supply you. Write us for price list and complete information.



Whether for Fractional or a Thousand H.P. there is a Dayton V-Belt Drive for the job.

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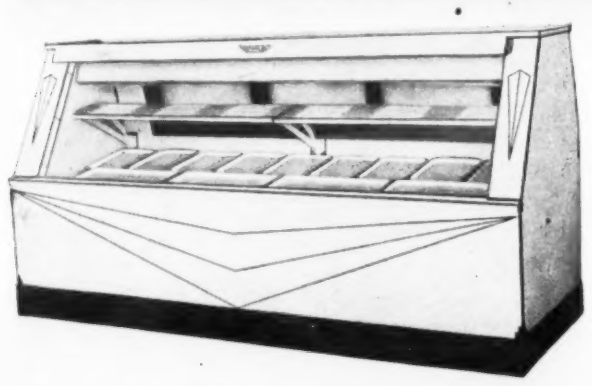
Guaranteed Satisfaction to Seller and User Assured You by Fogel Cases and Coolers. The Stamp of Approval by Fogel Insures You of Quality Throughout by Concentration on a Quality Line Only. The Sale of the Fogel Quality Line Will Earn Larger Profits for You Through Increased Volume.



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1—Immediate acceptance through exclusive selling features.
2—Greater value, quicker results, larger profits.

FOGEL REFRIGERATOR COMPANY
Philadelphia, Pa.

THE AIR AGE

BY F. O. JORDAN

Why This Column

Purpose of this column is to give the readers of AIR CONDITIONING AND REFRIGERATION NEWS an opportunity to air the condition of their views on air conditioning and its problems, and to serve as a constant source from which they may pick up odds and ends of information pertinent to air conditioning.

We sincerely hope that an active part in contributing to this column will be taken by all.

If you have attended gatherings where the whole show was put on by one fellow, especially if this fellow did not know the minds and interests of his audience, you remember just about how much "kick" there was to that arrangement. Therefore, for this column to be useful and interesting to the readers, it must be run on the order of the meeting where all of the customers feel free to discuss the points nearest their hearts, and to ask for the information they most desire.

Probably it will be necessary for the staff here to fill in the verse, but we expect everybody to join in on the chorus.

* * *

A New Function for Air Conditioning

The Harvard University School of Public Health announces that a new type of disease germ-killing ultraviolet ray floodlight has been developed there.

It is claimed that this machine can lay down an invisible barrage through which bacteria cannot pass.

Think of the possibilities, Mr. Air-Conditioning Man. Visualize an air-conditioning unit or system which, in addition to the present four-fold conventional air-conditioning functions of regulating temperature, humidity, dust content, and air circulation, is provided with a "bug"-proof barrier which says to disease, "Thou shall not pass." With such a sentinel as this to stand guard over the air breathed by air-conditioned humanity, the result will be "conditioned air" in the fullest sense of the word.

Among the dread diseases which are said to fall before the lethal powers of this ray are included colds, influenza, measles, whooping cough, small pox, meningitis, mumps, diphtheria, scarlet fever, infantile paralysis, and psittacosis. Most of these troubles originate in nasal and throat infection received when breathing germ-laden atmosphere. In fact, a statement is made in the United States Public Health report to the effect that 85% of the deaths due to infection start in this way.

When all of these facts are contemplated in toto, the imagination begins to stagger under the necessity of cure for many common and often fatal diseases. In truth, if germicidal air conditioning becomes a reality, the safest place in time of epidemic will be 'midst the crowds of the air-conditioned theater, rather than in the deserted but non-air-conditioned countryside, Mr. Ripley, take notice.

There seem to be no great difficulties involved in adding this fea-

(*Concluded on Page 27, Column 1*)

Chicago 1936 Installations (cont.)

Name and Address	Installation	Hp.	Tonnage
Jack's Sandwich Palace, 1007 Argyle	U. S. Air Cond.	1	1
Kai-Kai Club, 2218 S. Wentworth	Reliance (Baldwin)	11½	10
Landers Grill, 115 W. Jackson	Reliable	16	15
LaSalle St. Station, 139 W. Van Buren	Airtemp	35	30
Levy's Restaurant, 2640 W. Division	Lipman (Keystone)	11	10
Mann's Rainbow Sea Food, 73 E. Lake	Carrier (Air Comf.)	20	20
Mayflower Doughnut, 140 N. Dearborn	Lipman (Phillip-Get.)	11½	10
Medinah Athletic Club, 505 N. Michigan	Ilg (A. C.-W. & C.)	31	30
Merit's Cafeteria, 1113 E. 63rd	York (Wendt & Crone)	25	25
O'Connell's Restaurant, 64 W. Washington	Frick (Midwest)	15¼	15
Ontra Cafeteria, 125 N. Wabash	Wittenmeier (Std. S. M.)	55	40
Ontra Cafeteria, 231 S. Wabash	Wittenmeier	75	75
Palmer House, 17 E. Monroe	Carrier (Air Comf.)	35	30
Phillips Restaurant, 6244 S. Ashland	M & E (Hilger)	5	5
Pixley & Ehlers, 333 W. Madison	Frick (Harbula)	45	40
Pixley & Ehlers, 180 N. Wells	Frick (Harbula)	10	10
Pixley & Ehlers, 68 E. Lake	Vilter (Harbula)	117	100
Raklios Restaurant, 60 W. Adams	Westing. (Kroeschell)	30	30
John Raklios Co., 10 E. Adams	Lipman (Keystone)	15	15
John Raklios Co., 1200 N. Clark	Lipman (Keystone)	20	20
Ciccardo Studio Restaurant, 437 N. Rush	Thermal Units (Air Dev.)	10½	10
Ricketts Restaurant Bar, 103 E. Chicago	G-E (Gillespie)	6	5
Spick & Span Restaurant, 1300 W. Randolph	Curtis (Natl. Korectaire)	10¾	10
Steak House, 507 S. Wabash	Deisler (Baldwin)	22	20
Stevens Bldg. Restaurant, 17 N. State	Wittenmeier	60	60
Terrace Casino, Morrison Hotel	Carrier (M & H)	44½	40
Thompson's Restaurant, 1030 Wilson	Airtemp	17	15
Thompson's Restaurant, 2745 N. Clark	Airtemp	10	10
Voight Restaurant, 207 W. 63rd	Carrier (Air Comf.)	3¼	3
Yacht Club, 50 E. Oak	Vilter	22	20
Andes Candies, 5559 Belmont	Brunner (Baldwin)	2¼	2

Candy Stores

Andes Candies, 4740 S. Ashland	York	3½	3
Dutch Mill Candy, 1109 Bryn Mawr	Frick (Claffey)	16½	15
Dutch Mill Candy, 6720 Stony Island	Ilg	3¼	3
Dutch Mill Candy, 4048 W. Madison	Howe	5½	5
Dutch Mill Candy, 3327 W. Lawrence	Howe	5	5
Dutch Mill Candy, 1636 E. 55th	Howe	5	5
Joy Candy Store, 6236 S. Halsted	Curtis (Natl. Korectaire)	¾	55
Joy Candy Store, 1557 W. 95th	Curtis (Natl. Korectaire)	5	5
Mrs. Snyder's 119 N. Wabash	Ilg.(Bunge)	6	5
Mrs. Snyder's, 406 S. Michigan	Ilg (Bunge)	3	3
Martha Washington, 3823 Broadway	York-West.-Camp.	2½	2
Martha Washington, 105 S. Clark	Ilg (Nilson)	3½	3
Martha Washington, 6767 Stony Island	G-E (General Heat.)	5¼	5
Martha Washington, 39 W. Washington	Ilg (Nilson)	3¼	3

Clothing & Dept. Stores

Blums North, 920 N. Michigan	Curtis (Natl. Korectaire)	18	15
Bond Clothing, 103 N. Wabash	York	17	15
Carson, Pirie, Scott, State & Madison	American Blower	320	500
Dutsch-Arnold-Engleberg, 337 S. Franklin	Columbia Sheet Metal	6	5
Finchley's Store, 19-23 E. Jackson	Kelvin. (Wittenmeier)	40	40
Graysons Shops, Inc., 2732 Milwaukee	Ilg (Hansen)	15	15
Howard's Clothing, 222 S. State	York.-West.-Camp.	30	25
Kerman's 160 N. Michigan	Frick (Midwest)	30	30
Lanathan Lingerie, 847 E. 63rd	Ilg. (Adv. Heat.)	3¾	3
Lane Bryant Co., 101 N. Wabash	Carrier	77½	55
Lerner Store, 30 N. State	Carrier (Buensod)	92½	80
Mandel Bros., State & Madison	Kroeschell	..	125
Mandel Bros., State & Madison	Carrier	400	300
Mandel Bros., State & Madison	Kroeschell	113	100
Mitchell Bros., 337 S. Franklin	Aire Rite	½	½
Mitchell Bros., 337 S. Franklin	Kelvinator (Com. Edison)	3	3
Mort Cooper, Inc., 161 N. State	Reliance (Dougherty)	6	5
Palmer Dress Shop, 80 E. Jackson	Kroeschell	6½	0
Quality Dress Shop, 1109 E. 63rd	General Electric	5½	5
Strahorn, Inc., 307 N. Michigan	Aire Rite	½	½

Drug Stores

Adler Drug Store, 1039 Bryn Mawr	Airtemp (Hoier)	8½	7½
Auditorium Drug Store, 445 S. Wabash	Westing. (Kroeschell)	10¾	8
Gibbs Drug Store, 4800 Washington	York.-West.-Camp.	3¾	3
Hartman Drug Co., 500 N. Michigan	G-E (Wendt & Crone)	20	20
Hartman Drug Co., 4800 N. Broadway	Airtemp	6	5
Liggett's Drug Store, 801 E. 63rd	Reliance (Modern)	12	10
Stineway Drug Co., 5100 S. Cornell	G-E (Kelleher)	5¾	5
Stineway Drug Co., 3156 Sheridan	G-E (Kelleher)	6	5
Stineway Drug Co., 180 N. Michigan	Frick (Midwest-Kai)	33¼	30
Von Herman Drug Co., Conway Bldg.	General Electric	17	15
Walgreen Drug Co., 36 N. State	Baker-Burge-Kay	35	30
Walgreen Drug Co., 334 S. Wabash	Baker (Assembled)	19	15
Walgreen Drug Co., 3601 Broadway	Carrier (Thum)	8	7½

Food Stores

Heinemann's Bakeries, 5600 Broadway	York-West.-Camp.	9	7½
National Tea Co., 4611 Broadway	Curtis	26	20
National Tea Co., 2011 Howard	Curtis	17	15
Louis Schlosser, 4822 N. Lincoln	Carrier	11½	10

Fur Stores

David Adler, 169 N. Michigan	Curtis (Nat. Korectaire)	3½	3
Harding Fur Co., 2714 Milwaukee	Frick (Midwest)	2	2
H. Himmel & Sons, 322 W. 63rd	Frick (Midwest)	5¾	5
Sears Roebuck & Co., 403 S. State	Curtis-Natl. Korectaire	20	15
Max Siegel, 2637 Milwaukee	Thermal Units (Addison)	7½	7½
Silberman, Becker, 1117 W. 35th	Carrier (Air Comf.)	10	10

Shoe Stores

Burt's Shoe Store, 38 S. State	Vilter	22	20
Burt's Shoe Store, 225 S. State	Carrier (Air Comf.)	17	15
Feltman & Curme, 11133 S. Michigan	York	5¼	5
Florsheim Shoe, 116 S. Wabash	Carrier	3	3
French, Shriner & Urner, 230 N. Michigan	Frigidaire	3¼	3
French, Shriner & Urner, 106 S. Michigan	Frigidaire	3¼	3
O'Connor & Goldberg, 27 E. Madison	Carrier (Air Comf.)	17	15
O'Connor & Goldberg, 59 W. Madison	Air Comfort	12	10
O'Connor & Goldberg, 205 S. State	Carrier (Air Comf.)	45	40
Regal Shoe Store, 10 S. Dearborn	Carrier (Air Comf.)	3	3

Miscellaneous Stores

Belmont Jewelry Store, 3240 Lincoln	Airtemp	1½	1½
Commonwealth Edison Co., 11046 S. Michigan	Westing. (Kroeschell)	30	25
Drell Bldg., 1 N. Halsted	Midwest (Kaiser)	35	30
Paul Hansen, 350 N. Wells	Frig. (Galla-Spec.)	5	5
S. S. Kresge, 10 S. State	Carrier	248	200
S. S. Kresge, 6300 S. Halsted	Carrier	320	250
Marks Bros. Jewelry, 146 N. State	York-West.-Camp.	11½	10
Mee Wau Lung, 2212 S. Wentworth	Norge (Sampson)	10	10
Meisner 5 & 10, 3124 W. 63rd	Curtis (Natl. Korectaire)	10	10
Neiser Store, 5 & 10, 3136 W. 63rd	Curtis (Natl. Korectaire)	17	15
Tatman, Inc., china, 625 N. Michigan	York-West.-Camp.	7¾	7½
United Air Lines, 5940 Cicero	Carbondale	19½	15
Woolworth's 4055 W. Madison	York-West.-Camp.	85	75
Woolworth's, 4613 N. Broadway	York-West.-Camp.	67½	60

Theaters (Electric Refrigeration)

Ace Theater, 6217 S. Halsted	General Electric	50	50
Cinema Theater, 151 E. Chicago	Frick (Midwest)	30	30
Civic Theater, 20 N. Wacker	American Carbonic	590	308
Cosmo Theater, 7922 S. Halsted	York-West.-Camp.	80	80
E.A.R. Theater, 6839 Wentworth	Westing. (Kroeschell)	50	37
Frolic Theater, 947 E. 55th	York-West.-Camp.	60	60
Hamilton Bros. Theater, 2138 E. 71st	York-West.-Camp.	60	60
Hub Theater, 1746 W. Chicago	Westing. (Kroeschell)	50	50
Jeffery Theater, 1952 E. 71st	G-E-Gallagher	120	100
Rialto Theater, 336 S. State	Frigidaire	30	30
Stratford Theater, 701 W. 63rd	York-West.-Camp.	150	150
Vic Theater, 3143 N. Sheffield	Wittenmeier	105	90
West Englewood Theater, 1619 W. 63rd	York-West.-Camp.	120	120
Will Rogers Theater, 5635 Belmont	Kelvin. (Wittenmeier)	100	80

CLASSIFIED ADVERTISING

RATES: Fifty words or less, one insertion, $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning and Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

SALES REPRESENTATIVE with complete knowledge of household and commercial equipment wholesale distribution, preferably with knowledge of application engineering, for Europe. State compensation expected and languages spoken. To be given consideration application must give full particulars regarding experience and references, which will be held confidential. Box 906, Air Conditioning and Refrigeration News.

POSITIONS WANTED

YOUNG MAN—31 years old—15 years' experience in electrical construction and maintenance work. Graduate of Utilities Engineering Institute of Refrigeration, Chicago. Have had some practical experience on refrigerators. Desire connections with firm in either capacity or combination of both. Have Michigan State Contractors and Journeyman's license for 1937. Box 904, Air Conditioning and Refrigeration News.

EXECUTIVE WITH ENGINEERING and sales experience available. Has traveled the East, South, and Middle West two years for a large refrigeration machinery manufacturer, had four years of engineering domestic and commercial refrigerators, and three years of air conditioning application work. Understands compressor design and problems of heating, cooling, and humidifying. Box 905, Air Conditioning and Refrigeration News.

SERVICE AND INSTALLATION man. Knows electricity and latest controls. Six years' experience with domestic and commercial refrigeration, air conditioning, automatic heating, and electrical appliances. Best technical training. Knows shot type and vertical and horizontal rotary oil burners. Good character, dependable, 34, married. Does not smoke or drink. Prefer location Middle West or Pacific coast. Available March 14. Box 907, Air Conditioning and Refrigeration News.

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MAJESTIC AND GRIGSBY-GRUNOW refrigerator and radio parts service. We have purchased all of the original Grigsby-Grunow Majestic refrigerator and radio parts service. We are the only original, the only genuine, the only direct factory parts and service anywhere in the world. Beware of inferior replacements and parts. Everything we sell is factory guaranteed. Send for prices and dealerships. G & G GENUINE MAJESTIC REFRIGERATOR & RADIO PARTS SERVICE, 5801 W. Dickens Ave., Chicago.

MAJESTICS EXCHANGED or rebuilt $18.50. Genuine Majestic repair and test equipment and parts used throughout. General Electric household units rebuilt $25. Prices f.o.b. Chicago. Six months' guarantee. Complete Majestic parts price list on request. REFRIGERATION PRODUCTS, INC., 122 West Illinois St., Chicago, Illinois.

MAJESTIC-GENERAL ELECTRIC-SERVEL hermetic units repaired and exchanged. Majestic with six months' factory guarantee $18.50, with one year factory guarantee $20.50. General Electric monitor top domestic units with one year factory guarantee $25.00. Servel hermetic units with one year factory guarantee $18.50. Prices f.o.b. our factory. Every unit undergoes complete tests for temperature, cycling, wattage consumption and quietness on genuine test equipment. REFRIGERATION MAINTENANCE CORP., 365 E. Illinois St., Chicago, Ill.

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ATTENTION—DAIRY, REFRIGERATION and case men. I have to offer the following Frigidaire units. Model A twin cylinder in perfect shape, at $22.50 per unit complete. Also model A 125, at $25.00 per unit. These units have Frigidaire one quarter H.P. motors, sixty cycle, 110/220, with cold control switch and contain SO_2. Please send deposit and quantity of units wanted. Will ship balance C.O.D. Freight charges collect. REFRIGERATION SURPLUS JOBBERS, 5622 Woodland Ave., Cleveland, Ohio.

ATTENTION DISTRIBUTORS! Food reproductions for refrigerator display. Manufacturers of artificial fruits, vegetables, meats, and fowl. Fifty pieces from which to select. Sets to accommodate every make refrigerator. Reasonable prices ranging from $2.75 to $9.00 per set. Write for complete data. ROMAN ART CO., INC., 2704 Locust Blvd., St. Louis, Mo.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

Lennox Furnace Co. Host to 400 Dealers & Salesmen

MARSHALLTOWN, Iowa — The Lennox Furnace Co., manufacturer of Aire-Flo air-conditioning units and warm air heating plants, was host to 400 dealers and salesmen attending the company's western convention here Feb. 2-5. Lennox has its main plant here and a similar production unit in Syracuse, N. Y., where a convention of eastern representatives will be held later this month.

Following dealers' sessions, at which new models were introduced, doors of the memorial coliseum, convention and exhibit headquarters, were opened to the public. Fifty-two units comprised the display.

THE AIR AGE

(*Concluded from Page 26, Column 3*)

ture to present day air conditioning, as the necessary equipment consists merely of a long slender quartz tube backed by an aluminum reflector by means of which the ray may be thrown to blanket the air intake through which the air steam must enter. The increase in operating cost would seem to be negligible, as it is stated that a 50-watt ray will kill all of the germs in 10,000 c.f.m. of air.

At the present writing, while the average air-conditioning manufacturer is strained to the danger point in his desire for features for overcoming sales resistance and getting the jump on competition, this invisible disease-killer may be the godsend that will help air conditioning get on its feet and prove to be a boon for humanity at the same time.

* * *

Operating Costs

In a discussion of the recent annual report by the Electric Utility Committee, the following statement was made:

"It is especially notable that in many localities there seems to be no definite relation between the dry bulb temperature recorded and the number or hours during which the summer air-conditioning equipment operated. The present committee, however, notes that there is still a basis for the belief that eventually a relationship between outside temperature and hours of operation may be shown."

This "belief that eventually a relationship between outside temperature and hours of operation may be shown," has always been a tough one to pin down.

Apparently, the disconcerting variable involved is the human element. Different people just will not turn on the old room cooler at the same outside dry-bulb temperature, simply because all people do not feel the same. Folks with an economical strain in their blood or with thin blood in their veins customarily do not start the air-conditioning operating expense until just before the paint starts to blister on the window sill. Others cursed with more generous disposition and waistlines throw in the air-conditioner switch before the thin-bloods put their top-coats back in hock.

Even the health and finances of the same individual have been known to vary from time to time.

For these reasons, the Utility Committee may find it difficult to hold all of the other independent variables constant enough to allow them to plot a consistent curve of "Operating Cost" versus "Dry Bulb Temperature."

* * *

3500 Dead

Flash—3,500 dead—due to heat prostrations during last July and August. So reports the National Safety Committee.

Let us hasten to say that here is no attempt to make fun of a tragedy, for death in any form is tragedy to someone.

We take this method of announcement merely to rivet the attention to a serious matter that may easily be overlooked. For if the simple statement were made that heat prostrations had accounted for 3,500 routine deaths, the average reader would calmly turn the pages in quest of something worth reading about.

The automobile and its contemporary boons to humanity have so accustomed and hardened people to the everlasting dead march passing in review on all sides as a matter of routine, that sudden death merits attention only when it occurs en masse, or in some manner of unusual violence. Yet there is just as much sadness involved in 3,500 scattered deaths from the acute pain and misery resulting from a death-dealing mid-summer heat wave as in the same number of deaths from any more spectacular cause.

Mountains have been moved just to save mere handfuls of cave-in trapped miners, while chartered telegraph wires have been kept red hot for days in sending the play-by-play account for gasping world to hear.

Hundreds of millions will be spent to curb future violence of rivers suspected of having the flood habit, although the lives taken by floods in the United States rarely run into the scores. So it should be, for human life is far beyond mere monetary value, and once taken away cannot be restored.

But 3,500 persons—a good sized town—are dead, and no concerted move made to prevent the annual recurrence of like disaster.

Yet air conditioning could be used to prevent most heat prostractions, and this purpose would be accomplished at a small fraction of the cost of one very tiny flood prevention program.

For it is not merely the brief exposure to the outdoor sun that kills; it is the long succession of sodden sleepless nights, the deadening heat of torrid days dragging their endless procession in stuffy rooms which sap the reserves of life and reduce it to the point of prostration, even though the actual collapse may come either in or out of doors.

This gradual debilitating process of continuous day by day exposure to excessive temperature and humidity may be eliminated by the judicious use of air conditioning.

Verily, air conditioning has its humane side as well as its commercial aspect.

* * *

Humidity in the Press Room

Paper must be protected from improper humidities, first because the moisture content of paper is so responsive to the humidity of the surrounding atmosphere, and second because the physical characteristics of paper are so dependent upon its moisture content.

If paper is allowed to become too dry it grows stiff and brittle, and tends to collect a heavy charge of static electricity that makes adjacent sheets adhere together, while its edges shrink and warp so that the sheets are difficult to feed into the printing press.

Excessive moisture equally is to be avoided because such a condition results in swelling and stretching, even to the extent of necessitating changes in adjustment of press settings, and because the ink-taking qualities of the paper are affected. Not only do changes in atmospheric humidity result in variations in the thickness of the paper itself, but even the diameter of the rolls over which the paper runs is affected, so that the bearing of the paper against the type is changed.

For these reasons it is very important that the humidity within the pressroom be maintained close to 60%. Humidities should be somewhat lower in folding and similar rooms, where 50% is desirable, with 35% being the acceptable minimum.

Dry-bulb temperatures probably are of lesser importance, although they should be kept within the human comfort zone in order to avoid smudging of paper due to human perspiration, as well as for the general welfare of employes.

BUYER'S GUIDE

SPECIAL RATES APPLY TO THESE COLUMNS ONLY
WRITE ADVERTISING DEPT. FOR FULL INFORMATION

GET RID OF MOISTURE with these new IMPERIAL DEHYDRATORS

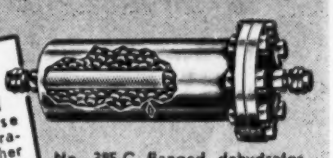
MOISTURE in refrigerant is such a constant source of trouble that these new Imperial Dehydrators are receiving a rousing welcome from service men everywhere.

In the new No. 313-C Dehydrator and its mate, the No. 314-C, the drier is contained in a refill cartridge which is made of brass with screen and felt at each end. The bolted end allows for quick change and when this end is put on the inlet side, the dirt and scale can be removed when replacement is made. Cartridges of activated alumina, calcium chloride, or calcium oxide as specified . . . and then there is the Imperial flanged dehydrator furnished in various lengths with dispersion tube at the inlet end that assures even distribution of refrigerant . . . and another new development is the No. 31-C—one of the lowest priced dehydrators on the market. It is suitable for use on small systems and it is frequently left on as a permanent part of the system.

IMPERIAL BRASS MFG. CO.
565 S. Racine Ave., Chicago, Ill.

Nos. 313-C and 314-C cartridge refill dehydrator with demountable flange

WRITE FOR COMPLETE INFORMATION about these new dehydrators and other new Imperial items for service work.



No. 385-C flanged dehydrator with dispersion tube

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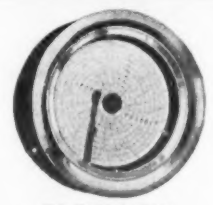
Marsh dial thermometers, in all types, and Marsh Recorders are also known for their rugged construction and lasting accuracy. Ask for facts about the Marsh re-calibration adjustment—an exclusive feature of Marsh Gauges and Thermometers.



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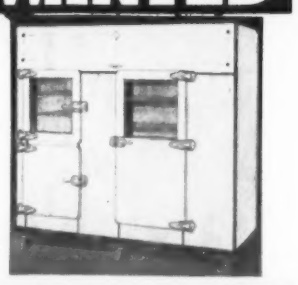
For mechanical refrigeration only



Percival's complete line will increase your sales of electrical refrigeration equipment and offer added earnings.

Desirable territories still available. Write for complete information.

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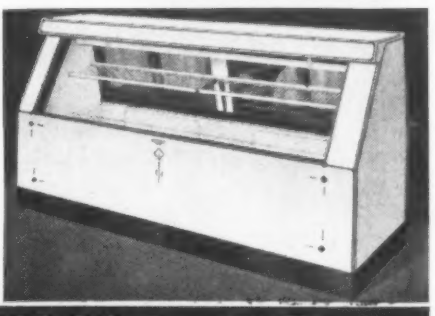
51 years of service to meat markets.



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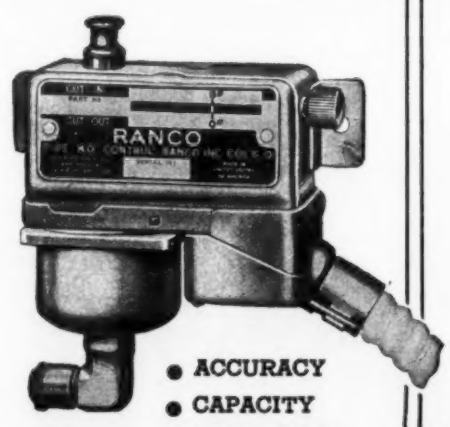
DES MOINES, IOWA



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RANCO Leads Again!

There's a growing demand for compact, dependable controls of high electrical capacity—for commercial service. And that's what Ranco offers—in fullest measure—in its new Type KO Control! This sturdy unit is adapted to low pressure or temperature control. It is made from corrosion-proof stainless steel, pioneered by Ranco in America's leading line of domestic refrigerator controls.

Electrical ratings are:—¾ hp.—110 to 220 V., AC and ⅓ hp. 115 V., DC. For Milk Coolers, Ice Cream Cabinets, Walk-in Coolers, Air Conditioning, Display Cases, Water Coolers and general commercial use. Write for bulletin 691.

RANCO, Inc., Columbus, Ohio

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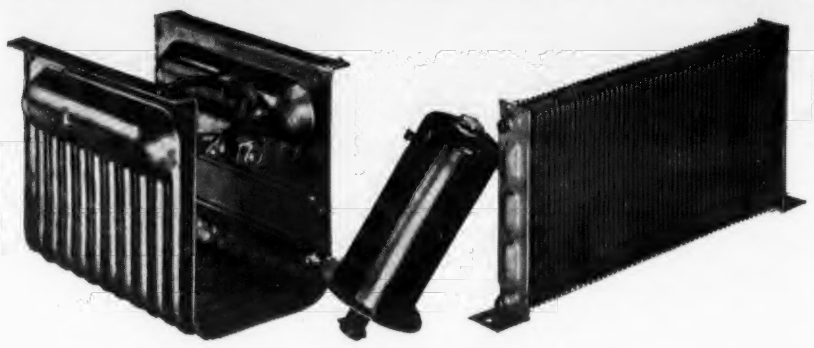

Evaporators, Receivers, Condensers, Compressor Domes, Compressors and Mechanical Parts. Also "Houdize," a perfected process for permanently uniting ferrous or non-ferrous metals.

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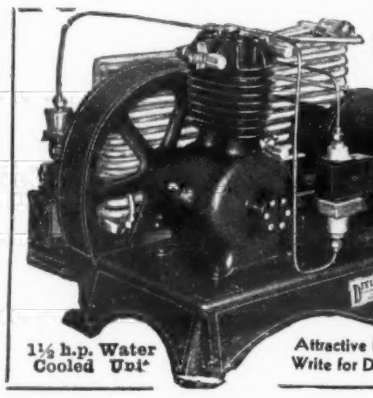

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CONDENSING UNITS from ¼ to 2 H.P. Air and Water Cooled.

BARE COMPRESSORS

DIRECT DRIVE CONDENSING UNIT ⅙ H.P. with exceptional capacity for household refrigerators. Particularly recommended for replacement of obsolete hermetic units.

1½ h.p. Water Cooled Unit

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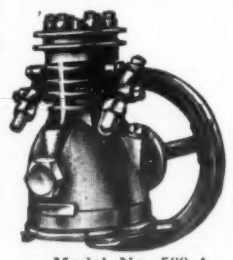

Model No. 500-A

"CHIEFTAIN"
QUALITY-BUILT COMPRESSORS and CONDENSING UNITS

All bearings diamond bored. Positive lubrication of parts by newly developed process plus forced feed lubrication in all models.

Sizes: 1/6, 1/5, 1/4, 1/3 h.p.
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Tecumseh, Mich.

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PIPE COILS & BENDS

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Low Initial Cost

NETCO MILK COOLER
COOLS MILK TO 50° IN 1 HOUR
ECONOMICAL—DEPENDABLE

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No Installation Cost—Requires Less Service—Exclusive Mechanical Agitation—Operates in Any Cooling Tank—Suitable for 4-6-8 Can Size Tanks—Furnished With or Without Cabinet.

The most mechanically perfect Milk Cooler ever developed.

Thousands satisfied Users. NETCO Milk Coolers have met the test of time; now in its fifth year serving the Dairy Farmer. Send for free Folder. See your nearest NETCO Dealer.

DEALERS WANTED Exclusive Arrangement for good Territory open for Live Dealers. Write for Proposition.

National Electric Tool Co., Dept. R. N., Chicago, Ill.

110 Engineers Complete 3-Month Carrier Course

NEWARK—One hundred and ten engineers, including many graduates of leading technical schools throughout the United States, recently completed a three-months course in air conditioning, heating, and refrigeration given by Carrier Corp.

V. S. Day, Carrier engineer, conducted the course. He was assisted by several of his associates in the Carrier organization.

In addition to engineering instruction, the men received lectures on sales promotion and advertising, management, and other phases of business operation. The training was given to prepare the men for prospective positions with Carrier dealers who find it necessary to increase their engineering staffs.

Classes were conducted daily in the Carrier auditorium.

Young Issues New Catalog On Heat Transfer Surfaces

RACINE, Wis.—Young Radiator Co. has published a new catalog on the company's heat transfer surfaces for commercial air-conditioning applications.

The catalog describes these surfaces and contains numerous charts and considerable data relative to their performance.

— AIR CONDITIONING ENGINEERING —

System Achieves Humidity Control Needed in Boston

By J. E. O'Neill, Boston Office, York Ice Machinery Corp.

NO. 10 High Street, Boston, is now the address of a modern public building in New England, for its corridors and 325 private offices now enjoy the advantages of a complete system of air conditioning. The system was installed last summer, and makes the Rice building probably America's largest privately owned completely air-conditioned building in the country with offices for public rental.

Due to its temperate geographical location, Boston is often considered, from a **temperature** standpoint, outside of the so-called air-conditioning zone of the country. However, there is another important factor to consider, **humidity.** With a given dry bulb temperature of, let us say, 90° F., humidity becomes the controlling factor of human comfort or discomfort. Boston invariably experiences high humidities in the summer, which stamps weather as oppressive during the warm months in this locality.

William B. Rice, II, active managing trustee of the building, concluded that proper temperatures and humidities maintained within the building would pay a handsome return on the investment. With this thought in mind, he called on the Boston branch of York Ice Machinery Corp. to make an engineering survey of the possibilities of air conditioning. An exhaustive study was made; the report was favorable.

Mr. Rice was cognizant of the fact that in addition to increased personal comfort, reduction of street noises, elimination of drafts and dust due to open windows, air conditioning offered an attractive inducement to prospective tenants. He realized also that with the building completely air-conditioned, he would minimize competition for high grade modern office space.

RETARD OBSOLESCENCE

"Among its many conceived advantages for this particular type of building, it will materially reduce the obsolescence rate and substantially increase the life of the building. This fact alone carried considerable bearing on our decision to air condition," Mr. Rice stated.

The Rice Building was erected in 1915. It is of brick and marble construction, 11 stories high, and is within three minutes of the South Station and 10 minutes of the North Station. Through these two stations pass thousands of commuters each day.

Although a survey showed that the building was suitable for an air-conditioning installation, there were still several obstacles to be overcome in locating the equipment and appurtenances. Practically all available space was rentable; thus space for equipment was at a premium.

The fact that the structure was erected 20 years ago and obviously not planned for air conditioning created a problem of locating ductwork in such a way as to conform with the architecture and at the same time obtain an efficient method of distributing the conditioned air to the many offices throughout the 11 floors.

This problem was rendered more acute by the physical shape of the building, which was built in the form of a letter "H." In other words, the two parallel wings were joined by connecting corridors. In this connecting corridor system is located the elevator shaft.

The ceilings of the main corridors were too low to allow space for ductwork, which would have impaired the architectural treatment. The wing-connecting corridors also were so constructed as to eliminate the possibility of placing ductwork in them. This eliminated any chance of a central air-handling system. There was not room in the basement, nor was the roof adaptable for a central system for each wing.

A method of solving the problem finally was arrived at, and accepted by Mr. Rice. A small storage room in the basement, 22 by 18 ft., was allotted to house the engine room.

MINIMUM SPACE USED

There was no other alternative but to locate the fan rooms, including coils, filters, and heaters, throughout the building. Space requirements were thoroughly checked. Small vacant offices were chosen and the final recapitulation amounted only to 1% of the total rentable area. This was surprisingly small, considering the amount and size of equipment installed in each space allotment.

In the choice of system, it was finally decided to install a central station water cooling system in the basement with a forced-draft steel cooling tower located on the roof of the building.

Chilled water mains were run from the engine room to the roof, supplying refrigerated water to the fan rooms located on intermediate floors, and to the penthouses on the roof. A separate insulated supply-and-return chilled water main was run through a court for each wing outside the building. The mains were erected at the juncture of the two wings and the connecting corridors.

There are eight fan rooms, four to each wing, located on identical floors. These fan rooms are on the second, fifth, and eighth floors and the roof.

UNITS IN SYSTEM

The systems consist essentially of six major units:

1. Refrigerating equipment for cooling water.
2. Condensing water cooling system.
3. Chilled water circulating system.
4. Air cooling equipment (fan rooms).
5. A system of galvanized iron ducts for the distribution of conditioned air throughout the building.
6. A temperature and humidity automatic control system.

The equipment in the basement consists of two York 12½x10 vertical single-acting, Freon-12 compressors, V-belted to two 125-hp. 230 volt d.c. motors; two 12 in. x 15 ft. horizontal shell-and-tube condensers; one 38 in. x 16 ft. shell-and-tube water cooler complete with the refrigerant recirculating "flash" type system; and four centrifugal water pumps, direct connected by flexible couplings to three 20-hp., 1,750 rpm., 230 volt d.c. motors and one 10-hp., 1,750 rpm., 230 volt d.c. motor.

Two pumps are for the chilled water system and two for the condensing water system in conjunction with the cooling tower on the roof. One of the two chilled water pumps and one of the condensing water pumps are utilized as spares.

In each of the three fan rooms throughout the large wing and in the penthouse on the roof of that wing are three York copper finned coils arranged for chilled water circulation from the main chilled water line located on the outside of the building; a bank of standard Aerofin heating coils for fresh air tempering purposes during winter operation; filters of the Independent Kompak type designed for low face velocity and maximum cleaning efficiency; one Buffalo Forge fan, handling 15,000 c.f.m. of air with specially constructed floating base; and a full complement of compensated dry bulb controls in conjunction with automatic air by-pass, winter humidity and tempering controls.

On the corresponding floor levels in the fan rooms and penthouse in the small wing are three York copper finned coils arranged for chilled water circulation, with full complement of appurtenances as mentioned above except that the fan handles only 12,000 c.f.m. of air.

There is a loop of ductwork in each wing. The ducts are run entirely within the offices throughout the building and are furred in and plastered. The last item necessitates a costly procedure but is well worth additional expense in tenant good will, Mr. Rice explains. A furred and plastered duct system dressed up the job.

On the second floor in each wing, the respective fan rooms supply conditioned air to the first, second, and third floors. The fifth floor fan rooms supply conditioned air to the fourth, fifth, and sixth floors in their respective wing; the eighth floor fan rooms supply conditioned air to the seventh, eighth, and ninth floors.

On the roof of each wing is located a penthouse enclosing a fan, coils, etc. These penthouses supply the tenth and eleventh floors of their respective wings.

CORRIDOR AIR RETURNS

Return air is drawn from the offices through slightly opened transoms. The corridors are then utilized as return air ducts. Each fan room obtains its return air from and only from the floors it conditions.

There are separate return air ducts from each corridor to each fan room. This, of course, is essential since each fan room has a separate temperature and humidity control system. The fan rooms also have separate fresh air intakes.

Each fan room has identical, separate, and complete control systems.

The fourth floor up through the eleventh floor is divided into two zones each. Zoning is, of course, necessary for a building of this size and nature, and is designed to compensate for sun load during the day.

On each floor are two thermostats at points best suited to actuate the automatic volume damper to compensate for the shifting sun load. During the course of the day, as a greater heat load is placed upon a given zone, the thermostat in that zone will call for more cooling effect. These thermostats are wired to a motorized volume damper in such a way that the air volume to a given zone is proportioned automatically to the heat load upon that zone. This action takes place on each floor from the fourth up through the eleventh floor.

COMPENSATED CONTROL

In each fan room there is a sub-master thermostat in the path of return air flow. On the outside wall of the fan room, shielded from the direct rays of the sun, is a master thermostat. This combination of master and sub-master thermostat results in what is generally known as compensated dry bulb control. In short, it means that as the outside temperature varies up or down, the master thermostat will automatically set the correct sub-master thermostat at a temperature which should be maintained within the conditioned space.

The usually accepted dry bulb temperature for the conditioned space, when the outside dry bulb

(*Concluded on Page 28, Column 1*)

FOR 30 YEARS
STANLEY KNIGHT
SODA FOUNTAINS
Lead again with new
1937 STREAMLINER Model
DISTRIBUTORS WANTED
3430 N. Crawford Ave., Chicago, Ill.

Thermo Valves
Expansion Valves
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ALCO

How Air Is Distributed in Boston Office

(Above) Unfinished ductwork in one of the offices in the building at No. 10 High St., Boston, showing how ducts are furred in. (Below) Finished ductwork in one of the larger offices.

By-Pass Arrangement Effects Saving in Rice Building

(*Concluded from Page 28, Column 5*)

temperature is 95° (disregarding humidity for the moment), is 80°.

For the purpose of a clear conception of compensated dry bulb control, let us say the outside temperature falls 5°. The master thermostat outside of the building automatically resets the sub-master thermostat inside 2° lower than was being maintained when the outside temperature was 95°.

In other words, should the outside temperature drop to 90° dry bulb, the inside conditions maintained by the sub-master thermostat would be automatically reset for 78°, and for each additional 5° drop outside the sub-master thermostat would automatically be reset approximately 2° lower. The reverse action, of course, takes place with an outside temperature rise of 5°.

This control manifests itself by more even and comfortable conditions within, and will tend to reduce "shock" when one has spent the entire day in an air-conditioned building and comes out onto the street. Another precaution to prevent "shock" has been the practice of shutting down the refrigerating system at about 4:30 and allowing the building to gradually warm up by 5 o'clock.

OPERATION OF BY-PASS

The Auditorium by-pass feature is incorporated in all fan rooms. This function is to attain proper humidity conditions regardless of variance of temperature and heat load. The Auditorium by-pass also affords economical operation of the cooling system by reducing undue heat load being imposed upon the refrigerating system. At certain periods during the cooling season all of the recirculated air is not required to be cooled, hence the economy of the by-pass feature.

The amount of by-pass air is controlled by an automatically operated damper allowing the air to by-pass from the recirculated air plenum chamber directly into the fan after first passing through the filters, there mixing with the return and fresh air that has passed through the cooling coils. This saving of refrigerating load is definitely reflected in the total kilowatt hour consumption at the end of each month.

During summer operation, let us say, the return air is drawn into the fan room and passes into a plenum chamber where it is mixed with fresh air. The mixture of return and fresh air first passes through filters where it is thoroughly cleaned, thence over the cooling coils, which are cooled by the circulation of chilled water around 46° to 47° F.

Let us say a maximum temperature of 95° dry bulb is encountered outside. The mixture of return and fresh air, as it strikes the coils, is approximately 85°. It is to be understood, of course, that the ratio of return air to fresh air is about 70% to 30%. This mixture of 85° air in passing over the cooling coils is brought down to approximately 62°, thus depressing the original air mixture temperature down below the dewpoint and squeezing water out of the air mixture, much the same as squeezing water out of a sponge which is partially saturated.

The fan then forces the air through the ducts and into the conditioned area. The air temperature is approximately 64° when introduced into the offices. This allows a 16° diffusion, or, in other words, a 16° difference between air entering the room at 64° and leaving as return air at 80°. After the introduction of the conditioned air into the offices, it absorbs the generated heat within the office and passes out into the corridor at a temperature of 80°. This return air is then conducted through the corridors back into the fan room where the cycle is repeated.

The fan system throughout the building is operated during the ventilating season. This operation occurs during that part of the year that calls for neither heating nor cooling. This condition is generally prevalent during the late spring and early fall season.

During winter operation, fresh air is taken into the fan room through the heating coils where it is tempered slightly above room temperature. It is then mixed with return air and passes through a water spray bank where the air is humidified to the proper degree as called for by the humidifying controls and is distributed throughout the building.

Four fans supply 15,000 c.f.m. of air each and the other four fans supply 12,000 c.f.m. of air each. This makes a total of 108,000 cubic feet of conditioned air delivered per minute, or 6,480,000 cubic feet of air per hour of which 1,500,000 cubic feet per hour is fresh air.

CHANGE EVERY 7 MINUTES

In other words, every hour of the day 6,480,000 cubic feet of air is filtered and either cooled and dehumidified or heated and humidified, depending upon the season. This means that the air in the building is changed completely every seven minutes and replaced with clean and healthfully conditioned air 12 months during the year.

This amount of air is thoroughly distributed throughout every square foot of rentable space in the building. Each grille outlet has a specially designed volume control register incorporating an ingenious method of manipulation. This affords each individual the privilege of adjusting the amount of air introduced into his office.

Steps have been taken to render the plant operation as fool-proof as mechanically possible. The compressors have four separate safety control systems, any one of which is capable of shutting down the system. The condensing water pump motor starting box is wired in parallel with the starting box on the cooling tower fan motor, so that they will operate as a unit.

A remote control panel is installed in the engine room in the basement. On this panel is mounted fan motor push button stations with pilot lights, all properly marked for identification.

The temperature guarantee for summer duty specified the production of an average inside temperature of 80° F. dry bulb and a relative humidity not exceeding 50% when the outside dry bulb temperature is 95° and 75° wet bulb. Heat generated from a source of 1,320 people simultaneously imposed with 44 kw. of lighting, 32 hp. on fans, natural heat leakage through walls, and the introduction of 1,500,000 cubic feet of fresh air per hour is compensated for.

COST OF SYSTEM

The total possible rentable space in the Rice Building is 93,000 sq. ft. The overall cost of the air-conditioning system was $125,000 completely installed and placed in operation. This left a net cost of approximately $1.35 per sq. ft. of rentable area, which compares favorably with the generally accepted figure for air conditioning a large office building of from $1.25 per sq. ft. to $1.45 per sq. ft. rentable area.

Mr. Rice recounted that prior to the installation of air conditioning, the total rented area amounted to 58,000 sq. ft. or, in terms of percentage, 62% occupied. With only two months' operation at the tail end of the season his rented space jumped to 67,000 sq. ft. or 72% occupied, which shows a net increase of approximately 16% in square footage.

Commenting on his decision to air condition the building, he remarked: "We have one of the best office buildings in Boston, but prospective tenants are looking for more than a mere desk space, especially with the advent of air conditioning, and particularly since they eat in air-conditioned restaurants and ride to and from work in air-conditioned trains. In view of this fact it is extremely important to offer a group of tenants an incentive for permanent rental."

For advertising purposes, the management worked up a booklet describing the building in detail, allotting several pages to the description of the air-conditioning system.

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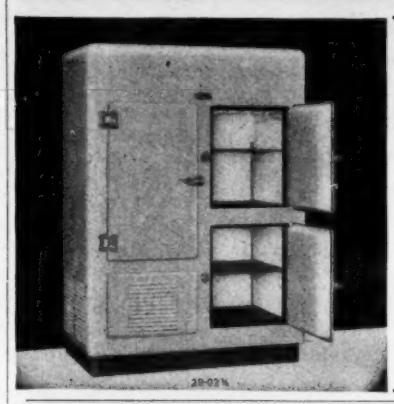

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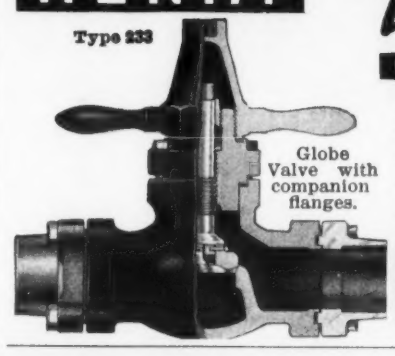

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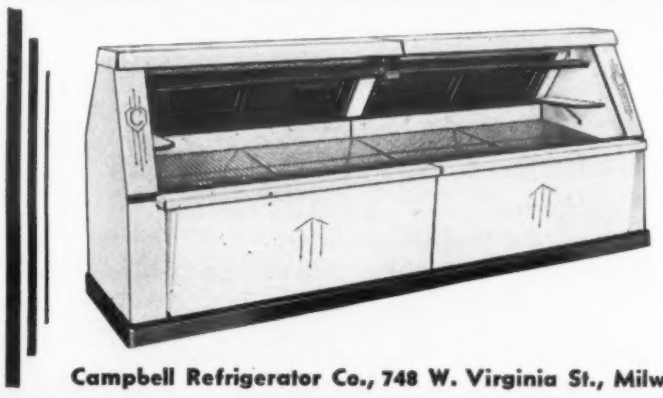

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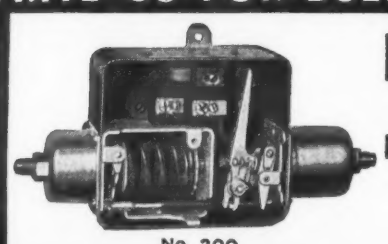

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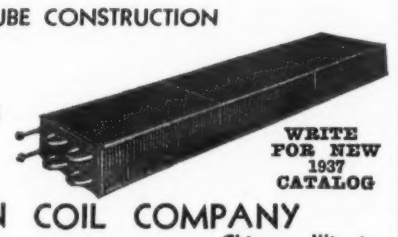

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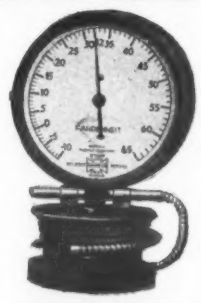

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Range Salesmen Attend Cooking School

DETROIT—Field men of Kelvinator Corp.'s electric range division recently attended a cooking school conducted by Miss Frances Weedman, Kelvinator's new director of home economics.

This course in modern electric cookery was instigated at the suggestion of Pierre Miles, sales manager of the range and water heater division. Mr. Miles believes that in order to be a successful salesman, a man must not only know how his product is made, but how it operates and what it does for the user.

Miss Weedman explained and demonstrated the various gadgets and features of the new Kelvinator range. She then prepared a complete meal, describing and explaining each step in detail.

Then, following textbooks prepared by Miss Weedman, the men themselves tried their hand at various phases of food preparation.

An open session of questions followed the actual cooking tests. Miss Weedman explained any points which the men did not understand, and answered the problems which they presented.

The school will be a regular feature of Kelvinator's training program for its men in the field, Mr. Miles explained. It will be supplemented, he said by frequent bulletins dealing with modern methods of cookery.

Members of the home economics department, under the direction of Miss Weedman, will conduct the same course in the home offices of various Kelvinator range distributors.

Safety Checkup Proves Good Prospect Getter

SAN ANTONIO, Tex.—Because it provided a good means for gaining entry into the prospect's house, the September Food Safety check-up merchandising campaign, which the San Antonio Public Service Co. conducted in cooperation with local refrigeration distributors and dealers, attracted the attention of utilities in other cities.

The plan stressed the danger of food spoilage when refrigeration temperatures get above 50° F., and offered to check the temperature in the customer's ice box or refrigerator free.

The utility received letters requesting details on the campaign from Northern States Power Co., Sioux City, Iowa; the Kansas Electric Power Co., Lawrence, Kan., and the Houston Lighting and Power Co., Houston, Tex.

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Issued Jan. 19, 1937

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2,068,080. AIR CONDITIONING APPARATUS. George L. Schuyler, Grosse Pointe Park, Mich., assignor, by mesne assignments, to Chrysler Corp., Highland Park, Mich. Application April 12, 1932, Serial No. 604,749. Renewed May 2, 1935. 8 Claims. (Cl. 257—8)

2,068,090. AIR CONDITIONING APPARATUS. Charles A. Stilphen, Denver. Application Feb. 20, 1934, Serial No. 712,098. 5 Claims. (Cl. 261—92)

2,068,131. REFRIGERATING APPARATUS. Charles F. Henney, Dayton, assignor to General Motors Corp., Dayton. Application Oct. 19, 1934, Serial No. 749,017. 10 Claims. (Cl. 62—4)

2,068,212. IRRADIATING MECHANICAL REFRIGERATOR. Stewart C. Whitman, New York City. Application Oct. 22, 1932, Serial No. 639,142. Renewed June 15, 1936. 9 Claims. (Cl. 99—247)

2,068,223. REFRIGERATOR CAR AND THE LIKE. Thomas A. Banning, Jr., Wilmette, Ill., assignor to Pullman-Standard Car Mfg. Co., Chicago. Application Sept. 29, 1930, Serial No. 485,170. 4 Claims. (Cl. 98—6)

2,068,249. CONTROL APPARATUS. Matson C. Terry, Detroit, assignor to Westinghouse Electric & Mfg. Co., East Pittsburgh. Application Oct. 3, 1932, Serial No. 636,087. 8 Claims. (Cl. 62—4)

2,068,329. GRID FOR ICE TRAYS. Victor N. Hybinette, Jackson, Mich., assignor to The Nicralumin Co., Jackson. Application June 19, 1933, Serial No. 676,516. 16 Claims. (Cl. 62—108.5)

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2,068,398. REFRIGERATING DEVICE. John A. Conrady, Cincinnati, assignor to The Crosley Radio Corp., Cincinnati. Application Feb. 19, 1936, Serial No. 64,755. 5 Claims. (Cl. 62—120)

2,068,435. REFRIGERATOR. Donald E. Rutishauser, St. Louis, assignor to Zero Plate Corp. Application Feb. 6, 1933, Serial No. 657,238. 6 Claims. (Cl. 62—116)

2,068,475. AIR CONDITIONER. Dennis E. Stump, Jr., Denver. Application Jan. 4, 1936, Serial No. 57,608. 1 Claim. (Cl. 257—7)

2,068,478. METHOD OF AND APPARATUS FOR CONDENSING REFRIGERANT IN REFRIGERATIVE CIRCUITS. John G. Bergdoll, York, Pa., assignor to York Ice Machinery Corp., York, Pa. Application Dec. 15, 1933, Serial No. 702,582. 5 Claims. (Cl. 257—37)

2,068,532. REFRIGERATOR CABINET. Edwin H. Boddy, Erie, Pa., assignor to General Electric Co. Application June 6, 1935, Serial No. 25,254. 5 Claims. (Cl. 220—9)

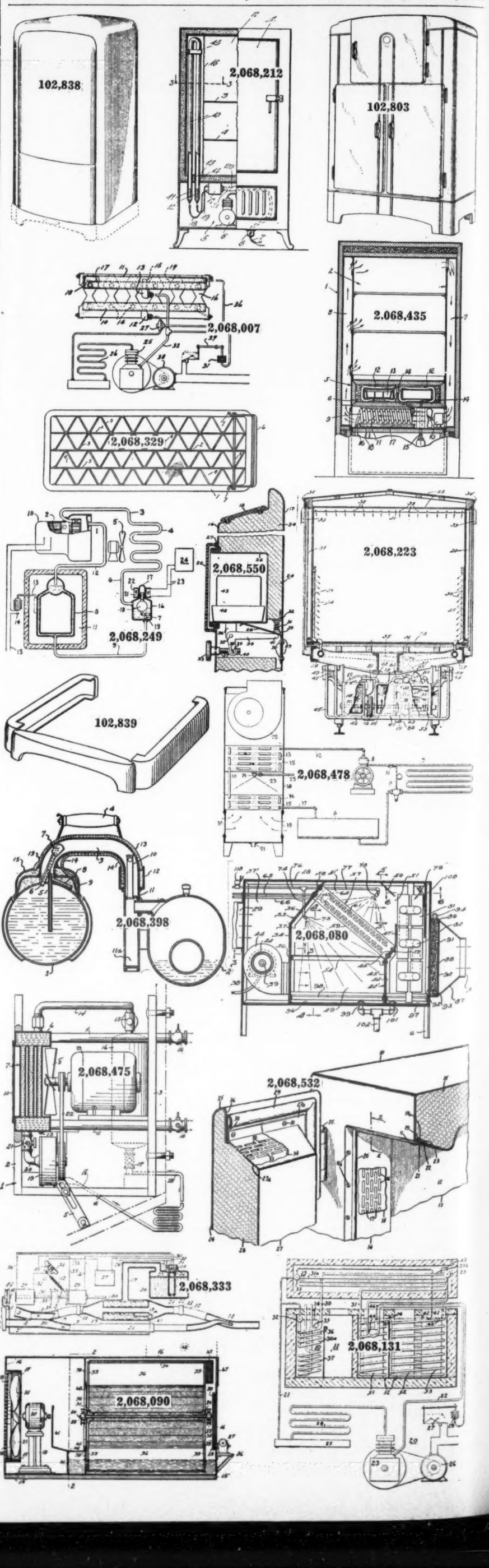
2,068,550. REFRIGERATOR CABINET. James L. Knight, Erie, Pa., assignor to General Electric Co. Application June 19, 1935, Serial No. 27,363. 7 Claims. (Cl. 62—89)

Designs

102,803. DESIGN FOR A REFRIGERATOR. Jean O. Reinecke, Chicago, assignor to The Coolerator Co., Duluth, Minn. Application Nov. 13, 1936, Serial No. 65,886. Term of patent 3½ years.

102,838. DESIGN FOR A REFRIGERATOR CABINET OR SIMILAR ARTICLE. Herbert Morley, Detroit, Lawrence H. Wilson, Grosse Pointe, and Herbert L. Davies, Detroit, Mich., assignors to Borg-Warner Corp. Application Jan. 18, 1936, Serial No. 60,660. Term of patent 14 years.

102,839. DESIGN FOR A BASE UNIT FOR A CABINET OR SIMILAR ARTICLE. Herbert Morley, Detroit, Lawrence H. Wilson, Grosse Pointe, and Herbert L. Davies, Detroit, Mich., assignors to Borg-Warner Corp. Application Jan. 18, 1936, Serial No. 60,661. Term of patent 14 years.



COMMERCIAL REFRIGERATION SERVICE

Requisites for Successful Operation of Duplexed Evaporators; Control Valves

CHAPTER 7—Evaporators & Refrigerant Controls (Cont.)

BY K. M. NEWCUM

Duplexing Flooded Evaporators

A duplex installation exists where two or more refrigerators are connected to the same condensing unit. A very common duplex installation in a meat market for example is a case and walk-in cooler. Often a market will have a dairy refrigerator in addition to the case and cooler, all on the same condensing unit.

The success of a duplexed installation depends largely on the type, construction and condition of each of the refrigerators. By this it is meant that if the walk-in cooler is well insulated and in good condition, having the proper baffle arrangement, and the case is of the heavy duty type with the proper baffle and coil arrangement, the refrigeration load is well balanced and successful refrigeration is obtainable.

If, however, the cooler is in excellent condition and the case is old, lightly constructed and insulated, the load is unbalanced, as the case, due to rapid heat leakage, will require more frequent operation of the compressor than will the cooler.

This condition may be reversed as in an installation where a market has an old poorly-constructed cooler and purchases a new well-built heavy duty case which is connected to the original condensing unit. In this installation the cooler will require more frequent and longer running cycles, often resulting in the case coils not defrosting, and in case temperatures being too low.

Balancing the evaporators to compensate for differences in construction is helpful, but in the earlier days of flooded coils the selection of coils was limited and the space provided for coils was a limiting factor.

Another fact which must not be overlooked is that up to relatively a few years ago the largest condensing units available were 1-hp. water-cooled, and 1½-hp. air-cooled. With this in mind, remembering that the limited surface on older flooded evaporators resulted in lower operating back pressures and condensing unit efficiency, it can be seen why many duplex installations were both undercoiled and what is termed "undercompressored."

In explanation: where the refrigeration load of say a large cooler and one or two cases exceeded the capacity of the largest condensing unit, it was difficult or next to impossible to persuade the merchant to purchase two or more condensing units. As a result the installation was made with an undersize condensing unit and continuous service calls resulted during the summer months.

Obviously the service man was helpless in such a case. The wise service man would nurse the job along until fall and cool weather came along when the installation would perform satisfactorily—until the following summer.

The old under-sold installations offer a promising field for the sale of more modern, higher capacity equipment. In many cases the installation of new modern evaporators operating at higher temperatures and pressures will add sufficient capacity to enable the present condensing unit to handle the job.

When two or more flooded evaporators in two or more fixtures are connected to a common suction and liquid line to a single condensing unit, the suction or operating back pressure is the same in all evaporators.

With the pressure the same the resultant refrigerant temperature will be the same, resulting in similar equal evaporator temperatures. In other words, there is no adjustment of flooded coils in multiple or duplex installations that will enable the service man to run one set of coils at a higher or lower temperature, as the installation may require to regulate the refrigerator temperature as is often necessary on different fixtures or unbalanced loads.

Where unbalanced temperatures exist, it is necessary to employ one of three common methods to increase the temperature of the fixture or fixtures requiring the higher temperature.

In any case it is first necessary to adjust the low pressure control to maintain a suitable temperature in the lowest temperature fixture.

First method to increase the suction pressure and temperature of the higher temperature fixture is to partially close the suction valve either at the evaporator in the line or on the compressor where a separate valve is available. By partially closing the hand valve, the suction line will be restricted and the pressure and temperature will be correspondingly higher.

This method requires constant attention on the part of the user and is not recommended, for the less any user has to do with the system the better for all concerned.

Second method, is the application of what is known as an automatic regulating or constant pressure valve in the suction line of the fixture to be controlled.

A Temprite automatic regulating or suction pressure control valve is shown in Fig. 130. The inlet and outlet are labeled. The suction line from the controlled evaporator is connected to the inlet. The suction line to the compressor is connected to the outlet.

The function of the valve is as follows: assume for example a duplex installation of a case and cooler. In normal operation, the cooler temperature was running at about 40° F. while the case temperature was running down around freezing temperatures. The case coils in this example would be the variable requiring control; the suction pressure valve should be installed in the suction line of the case. The low pressure compressor control would then be adjusted to reduce the temperature in the cooler to, say 36° F., and then cut off.

The suction pressure valve would be adjusted by turning the adjusting nut until the desired case temperature is obtained. Turning the adjusting nut to the left or counter clockwise raises the pressure in the controlled evaporator while turning the nut to the right lowers the pressure, hence the temperature. In this example it may be found that a pressure difference of two or three pounds or inches may have balanced the temperature.

Suction pressure, automatic regulating and constant pressure valves do not close with a snap nor do they have a definite closing and opening setting such as a snap action valve.

The action of the valve is such that if adjusted for example to 8 inches of vacuum it will automatically regulate the suction line pressure so that the pressure never drops below this setting.

The pressure may rise considerably higher and in doing so cause the valve to open wider. As this pressure is reduced to around the setting, the bellows causes the valve to choke or restrict the flow so that the pressure never goes below 8 inches.

A Fedders constant pressure valve is illustrated in Fig. 131, showing the refrigerant circuit through the valve. This valve is equipped with a shut-off valve which provides a gauge connection for adjusting as shown in Fig. 132. Turning the adjustment down or to the right raises the suction pressure and vice versa.

Temprite Valve

TEMPRITE TWO-TEMP VALVE

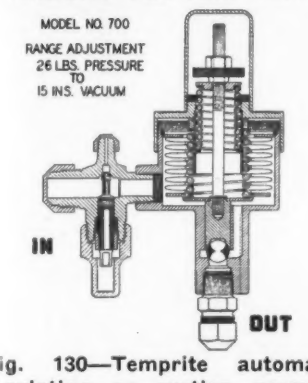


Fig. 130—Temprite automatic regulating or suction pressure control valve.

Fedders Valve

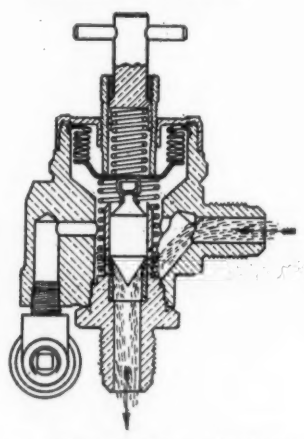


Fig. 131—Fedders constant pressure valve.

Adjusting Fedders Valve

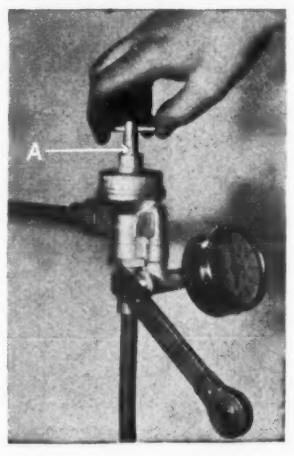


Fig. 132—Valve is equipped with shut-off valve providing gauge connection for adjustment.

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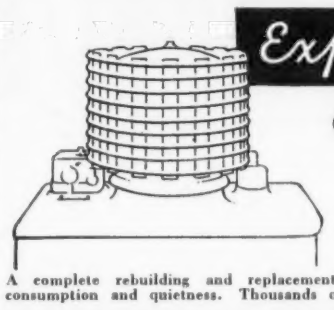

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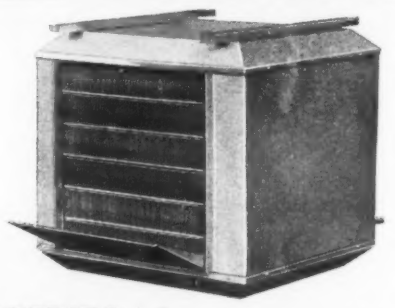

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